SF
C58
#468
DRAFT

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF CITY PLANNING

MONTGOMERY-WASHINGTON BUILDING

SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

DRAFT

81.104 E

DOCUMENTS DEPT.

JUL 2 6 1984

SAN FRANCISCO
PUBLIC LIBRARY

PUBLICATION DATE: JULY 23,1984

PUBLIC HEARING DATE: AUGUST 23,1984

PUBLIC COMMENT PERIOD: JULY 23,1984 THROUGH AUGUST 23,1984

D ITTEN COMMENTS SHOULD BE SENT TO
: ENVIRONMENTAL REVIEW OFFICER
cALLISTER STREET, SAN FRANCISCO, CA 94102

REF
711.4097
M767sd

5/S

DOCUMENTS DEPT.

SAN FRANCISCO
PUBLIC LIBRARY

REFERENCE
BOOK

Not to be taken from the Library

SAN FRANCISCO PUBLIC LIBRARY
3 1223 04404 9626

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF CITY PLANNING

MONTGOMERY-WASHINGTON BUILDING

SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

DRAFT

81.104 E

PUBLICATION DATE: JULY 23,1984

PUBLIC HEARING DATE: AUGUST 23,1984

PUBLIC COMMENT PERIOD: JULY 23,1984 THROUGH AUGUST 23,1984

WRITTEN COMMENTS SHOULD BE SENT TO
THE ENVIRONMENTAL REVIEW OFFICER
450 McALLISTER STREET, SAN FRANCISCO, CA 94102

REF 711.4097 M767sd

Montgomery-Washington
Building : supplemental
1984.

3 1223 04404 9626

S.F. PUBLIC LIBRARY

TABLE OF CONTENTS

		Page
I.	INTRODUCTION	
	A. Historical Overview	1
	B. Scope of Supplemental EIR	3
II.	SUMMARY	
	A. Project Description	5
	B. Environmental Impacts	6
	C. Mitigation Measures	12
III.	PROJECT DESCRIPTION	14
IV.	ENVIRONMENTAL SETTING	
	A. Land Use	17
	B. Transportation	22
	C. Air Quality	25
	D. Residence Patterns and Housing	28
V.	ENVIRONMENTAL IMPACTS	
	A. Introduction to Cumulative Impact Analysis	37
	B. Transportation	40
	C. Air Quality	67
	D. Energy	73
	E. Residence Patterns and Housing	76
VI.	MITIGATION MEASURES	
	A. Transportation	85
	B. Air Quality	88
	C. Housing	88
	D. Energy	88
VII.	SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROJECT IS IMPLEMENTED	90
VIII.	EIR AUTHORS AND PERSONS CONSULTED	91
IX.	DISTRIBUTION LIST	93
X.	APPENDICES	
	A. Peremptory Writ of Administrative Mandamus	A-1
	B. Cumulative Office Development in Downtown San Francisco	A-6
	C. Transportation	A-15
	D. Air Quality	A-25
	E. Residence Patterns and Housing	A-27
	F. City Planning Commission Resolution of Project Approval	A-31

LIST OF TABLES

		Page
1.	Projected Outbound Travel Demand By Mode From The Project	41
2.	Comparison of List Method and Economic Forecast Method - Outbound P.M. Peak-Hour Cumulative Travel Demand For the C-3 District	47
3.	Outbound Regional Transit Demand and Level of Service	51
4.	Peak Pedestrian Volumes and Flow Regimen At Washington and Montgomery Streets	58
5.	Outbound Regional Auto Demand	60
6.	Projected Peak-Hour Intersection Volume-to-Capacity Ratios and Levels of Service	63
7.	Projected Daily Pollutant Emissions	67
8.	Projected Worst-Case Curbside Carbon Monoxide Concentrations	69
9.	Regional Perspective on Residence Patterns	81

LIST OF FIGURES

		Page
1.	View of Project From Montgomery and Green Streets	15
2.	Muni Routes in the Project Vicinity	23
3.	Comparison of Cumulative Impact Assessment Methodologies	38

I. INTRODUCTION

PURPOSE OF THIS SUPPLEMENTAL EIR

A. HISTORICAL OVERVIEW

This supplement to the environmental impact report (EIR) for the Montgomery-Washington Building (EE81.104E) has been prepared under a Peremptory Writ of Administrative Mandamus entered by San Francisco Superior Court Judge Daniel Weinstein in San Franciscans for Reasonable Growth v. City and County of San Francisco, Crow-Spieker No. 99 Associates, Real Party in Interest, San Francisco Superior Court Number 793064. (Appendix A contains the Superior Court's Peremptory Writ of Administrative Mandamus.)

On January 28, 1982, the San Francisco City Planning Commission (CPC) certified the Final EIR for the project (Resolution 9293) and approved the project (Resolution 9294). On December 17, 1981 the CPC filed a Notice of Determination, commencing a 30-day period within which challenges to an EIR of final project approval must be made. On April 12, 1982, San Franciscans for Reasonable Growth (SFRG) filed suit under the California Environmental Quality Act, challenging the Planning Commission's actions. The Montgomery-Washington Building project was one of four projects SFRG petitioned to set aside CPC resolutions for EIR certification and project approval./1/

The San Francisco Department of Public Works issued building and site permits to the project sponsor and work began on the site prior to any formal decision by the trial court. SFRG appealed the issuance of permits for all four projects to the Board of Permit Appeals. In late May 1982, the appeal was denied by the Board, which based its findings on the CPC's previous resolution actions. Shortly thereafter, SFRG amended its petition to void the Notice of Determination and the building permits in addition to challenging the EIR certification and project approval for all four projects.

Digitized by the Internet Archive
in 2014

https://archive.org/details/montgomerywashin2319sanf

On July 22, 1982, the trial court denied all of the petitions, issuing a memorandum of decision that found that: (1) the EIRs were adequate, (2) there had been no abuse of discretion in certifying the EIRs and approving the projects, and (3) the findings and mitigation measures for each project were supported by substantial evidence.

SFRG appealed the decision by the trial court to the California Court of Appeal, First Appellate District. The appellate court found the EIRs to be inadequate and incomplete because the CPC "failed to interpret the requirements of a cumulative impact analysis so as to afford the fullest protection of the environment." The court found that the Commission erred in its interpretation of CEQA by basing the cumulative analyses on only approved projects and projects under construction and not including projects under review.

The appellate court found that by omitting in the cumulative impact analysis other closely related projects that were currently under environmental review, the EIRs failed to provide the responsible agency or the public with the type of information called for under CEQA and the state CEQA guidelines which require study of the "... incremental impact of the project when added to other closely related past, present and reasonably foreseeable probable future projects."/2/ The court concluded that the trial court erred in its findings regarding the adequacy of cumulative impact analysis in the EIRs, reversed the judgements and remanded the four matters to the trial court for action.

On May 9, 1984, the Superior Court of California issued a Peremptory Writ of Administrative Mandamus which vacated the certificate of completion of the Final EIR (FEIR) and required preparation and publication of a Supplemental EIR. The Court directed the scope of the Supplemental EIR to "supplement the analysis in the FEIR of the cumulative impacts of the subject project together with other closely related past, present and reasonably foreseeable probable future projects." A final Certificate of Occupancy may not be issued by the City until certification of the Supplemental EIR.

B. SCOPE OF SUPPLEMENTAL EIR

This report supplements or modifies the cumulative impact analysis in the EIR published November 13, 1981 and certified January 28, 1982 (hereinafter called FEIR). The current analysis of the cumulative effects of the proposed project is discussed in the transportation, air quality, energy and housing sections. Under each topic discussed, those portions of the FEIR that have been replaced are identified. The remainder of the material constitutes additions to the appropriate sections or subsections of the FEIR and is not specifically called out as additions in order to avoid interrupting the sense of the material.

Cumulative analysis in the project's FEIR was based upon approximately eight million square feet of office space approved or under construction as of October 1980. Transportation impacts were assessed using Guidelines for Environmental Evaluation - Transportation Impacts, prepared by the San Francisco Department of City Planning, July 1980 (revised October, 1980). Muni transit impacts were based on estimates of patronage and load factors most likely to occur in 1983.

Cumulative analysis in this Supplemental EIR is based upon approximately 19 million square feet of net new downtown office space. This includes projects as of March 10, 1984 that are under formal review by the Department of City Planning, approved or under construction. The process used to develop the cumulative list and the list of projects appears in Appendix B. This list contains the most recent cumulative development projections prepared by the Department. In addition to updating the FEIR to reflect the revised cumulative development projections, this Supplemental EIR also presents a revised cumulative analysis of the transportation, air quality, housing and energy impacts of the project using the cumulative analysis methodology developed for the Downtown Plan Draft EIR (DEIR published March 16, 1984). Subjects not covered in this Supplemental EIR are not affected by changes in cumulative development projections for downtown San Francisco or cumulative analysis methodology.

The Downtown Plan DEIR's cumulative analysis methodology differs from recently certified EIRs for downtown office projects in that the cumulative analyses in

these EIRs were based on the projected number of square feet of cumulative development, whereas in the Downtown Plan DEIR it is based on projected employment. The two methodologies are compared in each impact section in this Supplemental EIR.

NOTES - Purpose of this Supplemental EIR

/1/ The other three projects listed in the lawsuit and subsequent judgements are the buildings at 101 Mission (EE 79.236, certified August 27, 1981), 160 Spear (EE 80.349, certified February 11, 1982), and 1 Sansome (EE 78.334, certified August 6, 1981).

/2/ California Administrative Code, Title 14, CEQA: The Guidelines, Section 15023.5(b).

II. SUMMARY

A. PROJECT DESCRIPTION

The Montgomery-Washington Building is located on Assessor's Block 208, Lots 2, 3, 4 and 25. Since certification of the Final EIR on January 28, 1982, the project has been constructed as approved and is partially occupied.

As described in the Final EIR, the Montgomery-Washington building is a 24-story, 300-foot combined residential-office building on a 17,400-square-foot lot. The first 17 floors contain 4,000 sq. ft. of retail and restaurant space, 25,000 sq. ft. of parking space and 236,600 gross sq. ft. of office space. The 18th floor is a transition floor including a mechanical services area, an athletic/health club, a residential common area, and some residential space. The 19th through 24th floors are occupied by 40 residential condominiums, most of which have private balconies or terraces. There is also a mechanical penthouse and rooftop open space.

B. ENVIRONMENTAL IMPACTS

Introduction to Cumulative Impact Analysis

The cumulative impact analyses in this EIR use two different approaches for estimating future transportation, air quality, energy and housing impacts:

- the Downtown Plan forecasts to the year 2000, and
- the March 10, 1984 list of projects in the greater downtown area.

There are several differences between the two approaches. The basic difference is that the Downtown Plan approach accounts for future changes to a range of land uses as well as changes over time in worker characteristics and behavior, while the list-based approach uses known projects of certain types to represent future activity and assumes unchanging characteristics and behavior. As a result of this basic difference in approach, the Downtown Plan forecasts incorporate changes over time in employment densities, residence patterns, and travel patterns, whereas the list-based approach applies current conditions to all future activity. These two approaches are alternative means of assessing the future cumulative context for downtown development.

According to the Downtown Plan forecasts, there would be a net addition of 21.7 million sq. ft. of space in all land uses in the C-3 District between 1984 and 2000. The project (232,100 net additional sq. ft. of office and retail space) would represent 1.1 percent of this amount.

The March 10, 1984 list of cumulative office development in the downtown area (the C-3 District and adjacent areas) includes a net addition of 19.9 million sq. ft. of office and retail space. The project would represent about 1.2 percent of the space in the projects on the list.

Transportation

Cumulative transportation impacts have been calculated by a cumulative-development list-based method used in most past San Francisco EIRs and by the new predicted employment-based method first presented in the Downtown Plan Draft EIR, published March 16, 1984. The employment-based model takes into account area-wide housing availability, planned transit system improvements, the effect of congestion on mode selection decisions, and other factors which are expected to change with time, thus giving a more realistic and sophisticated prediction than the list-based method, which assumes no changes in modal split or residence patterns of San Francisco workers between now and the year 2000. The two methods are not directly comparable because the employment-based method analyzes C-3 (all uses) and non-C-3 District trips, while the cumulative-development list covers travel from only office and retail in the greater Downtown area.

Net new trip generation from the project would be about 4,340 person-trip-ends (pte) per day. About 650 new outbound trips would occur during the p.m. peak period, 400 of these during the peak hour. On the basis of modal splits predicted for the year 2000 by the Downtown Plan Draft EIR, the main peak-period trip contributions would be: to Muni - 90 trips, BART - 90 trips, walk only - 30 trips, drive alone - 60 trips and car/vanpool - 70 trips.

The transit demand from the project would represent about 0.2% of the total transit demand in the year 2000. Planned capacity increases of transit carriers in conjunction with transit ridership increases from cumulative development under the Downtown Plan to the year 2000, would be expected to result in the following changes in transit Levels of Service during the peak period: Muni Northeast Corridor - D to C, BART Transbay - F to E, AC Transit - C to D, Golden Gate Ferry - B to A, Tiburon Ferry - B to C, and CalTrain - B to C.

The proposed project would generate about 180 new pedestrian trips on the surrounding sidewalks during the noon 15-minute peak period and about 130 new pedestrian trips to those sidewalks during the p.m. 15-minute peak period.

Sidewalk operations, currently in unimpeded or better conditions on Washington and Montgomery Sts. during both the noon hour and the p.m. peak hour, would be in the impeded range during the noon hour and remain in the unimpeded range during the p.m. peak hour, in the year 2000.

About 0.1% of year 2000 Bay Bridge peak period demand would be due to the project. About 0.1% of peak-period demand on the Golden Gate Bridge, U.S. 101 (south of Harney Way), and I-280 (between Alemany Blvd. and San Jose Ave.) would be due to the project.

Cumulative development by the year 2000 would be expected to decrease the peak-hour intersection Levels of Service at Battery and Clay Sts. from C to D, and those at Mission and Beale Sts from E to F, and to aggravate the jammed conditions at First and Harrison Sts.

The C-3 District would generate demand for approximately 58,000 equivalent daily parking spaces in the year 2000 under the Downtown Plan, an increase of 28% from 1984. Short-term demand would continue to represent about 25% of the total demand. The project parking demand would represent about 0.3% of the total demand from the C-3 District. The parking supply has been assumed to be about 51,000 spaces. There would be a parking deficit of about 6,000 spaces in the year 2000 if vehicular demand occurs as projected.

Air Quality

Traffic generated by cumulative development would increase the total regional burden of emissions in the Bay Area. This increase would not produce increases in ozone concentrations in the Bay Area, although it could produce small increases in ozone at locations further downwind. The project would produce about 0.6% of the air pollution generated by cumulative list projects.

Cumulative development generated traffic could also increase carbon monoxide (CO) emissions on local streets. However, because of ongoing state and federal emissions control regulations, these increases would not cause CO concentrations in future years to be higher than they are currently. Rather, CO concentrations would generally continue to decrease as older, more polluting vehicles are replaced by newer cars. No violations of standards are predicted to occur in future years. The project would contribute less than 1% to the total CO at the intersections studied.

Energy

Yearly estimated electrical consumption for the projected 19 million square feet of additional downtown office space at the time of buildout (mid-1990s) of the projects on the March 10, 1984 cumulative list would be approximately 340 million kilowatthours (kWh) of energy per year. PG&E projects an increase in annual energy demand over the next decade of about 200 million kWh. The lower PG&E estimate is largely due to a lower development estimate.

The Downtown Plan DEIR predicts an increase of about 210 million kWh of annual electrical consumption between 1984 and 1990, and of about 330-350 million kWh of annual consumption for the years between 1990-2000. The PG&E projections and Downtown Plan DEIR do not predict energy consumption for exactly the same time period and thus are not comparable.

Residence Patterns and Housing

According to the Downtown Plan forecast, 189,000 C-3 District workers would live in San Francisco in 2000. The Montgomery/Washington project would be a part of this total. About 380 people working in this building would live in San Francisco, about 0.2 percent of the total for the C-3 District.

According to the list-based approach, about 230,000 workers in the greater downtown would live in San Francisco after build-out of the projects on the list. The Montgomery/Washington project would account for 0.17 percent of the total.

Employment growth accommodated by the project and the many other projects considered in either the Downtown Plan forecast or the list-based analysis has implications for the San Francisco housing market. These can be summarized as follows:

- There would be more people with preferences and increased resources to pay for San Francisco housing, adding to an already strong demand.
- The housing supply would be expanded in San Francisco. However, the private market is expected to continue to have difficulty producing affordable housing, for many housing market reasons.
- There would be increased competition for the available housing units. As a result, there would be higher prices/rents for San Francisco housing with continued employment growth than without it.
- Generally, households with fewer financial resources to pay for housing would make the most sacrifices in adapting to more competitive market conditions. San Francisco currently has and will continue to attract a large number of persons who would be faced with greater difficulty in securing housing.

Cumulative employment growth in downtown San Francisco would have less impact in the context of the rest of the region's housing market. Considering trends in labor force participation, workers per household, housing production and employment growth throughout the region, future workers in downtown San Francisco would not require much larger shares of the region's housing stock in the future than they do now. In the future, the

relationship between downtown workers and other workers competing for housing in the region would be relatively similar to current conditions. As part of total regional employment growth to the year 2000, increases in San Francisco employment can be viewed as contributing to regional housing demand and to a competitive regional housing market with relatively high housing prices and rents.

C. MITIGATION MEASURES

Mitigation measures described in the FEIR as "Measures Proposed as Part of the Project" were part of the project plans and were incorporated as conditions of project approval.

1. Transportation

A few conditions that mitigate the project's contribution to cumulative transportation impacts were included in the project approval action but not discussed in the FEIR. These measures are reproduced in the text of this Supplement to the FEIR.

If the City were to adopt and implement the transportation improvements described in the Downtown Plan, or were to act to implement transportation mitigation measures described in Section V.E. Mitigation, pp. V.E.4-28 of the Downtown Plan Draft EIR, cumulative transportation impacts of downtown growth would be reduced. These measures are system-wide measures that must be implemented by public agencies and cannot be implemented by individual project sponsors.

The following measures are not included as part of the project:

Requiring a portion of the office space in the project to remain vacant would contribute to mitigation of cumulative transportation impacts.

Contribution of fees over and above the present $5.00 per square foot could mitigate some of the project's contribution to cumulative transportation effects. However, the City Planning Commission has no authority to require such a mitigation measure.

2. Air Quality

Measures that would reduce transportation impacts by reducing the number of vehicle miles traveled would reduce cumulative air quality effects.

3. Housing

A requirement to provide housing in San Francisco was included in project approval conditions, thus reducing project-specific contributions to cumulative housing impacts in San Francisco.

4. Energy

The project is in compliance with State Title 24 Energy standards. In addition, project approval included a requirement to review energy consumption one year after building occupancy and implement reasonable energy conservation measures recommended as a result of that review.

III. PROJECT DESCRIPTION

The Montgomery-Washington building is located on Assessor's Block 208, Lots 2, 3, 4 and 25. The site is in the northwestern Financial district, bounded by Washington, Montgomery and Merchant Streets. Since certification of the Final EIR (FEIR) on January 28, 1982, the project has been constructed as approved and is partially occupied. Figure 1 is a photograph of the completed project.

As described in the FEIR, the project is a 24-story, 300 ft. high building with about 331,700 gross sq. ft. of floor area. The ground floor contains separate office and residential lobbies, and 4,000 sq. ft. of retail and restaurant space. The second floor with mezzanine provide 25,000 sq. ft. of parking space and 3,300 sq. ft. of loading space. The third through 17th floors contain 236,600 gross sq. ft. of office space. The 18th floor is a transition floor containing mechanical service areas, an athletic/health club, a residential common area, and the lower portions of townhouse units with entrances on the 19th floor. The 19th through 24th floors are occupied by forty residential condominiums. There is also a mechanical penthouse and rooftop open space.

The floor area ratio (FAR) for the project is about 18.8:1, as described in the FEIR. The additional floor area above that allowed under the City Planning Code was obtained via development bonuses for (1) provision of multiple pedestrian building entrances, (2) provision of additional sidewalk area within the property line of the project site, (3) construction of a rooftop observation deck, open to the public, (4) shortened walking distances, and (5) increased parking.

As described in the FEIR, the structure was constructed with upper level setbacks on all four corners that terrace diagonally across the northeast corner of the site. Special emphasis was given to setbacks at the corner at Washington and Montgomery Streets, where setbacks are intended to preserve

FIGURE 1:
VIEW OF PROJECT FROM MONTGOMERY AND GREEN STREETS

SOURCE: ESA

views from upper Columbus Ave., and to reduce the apparent bulk and scale of the building as seen from the Jackson Square Historic District and Telegraph Hill.

Construction, excluding tenant improvements, was estimated in the FEIR at $25 million in 1981 dollars. In early 1982, the project sponsor, Crow-Spieker Companies, doing business as Trammell Crow Company, began construction. Architects for the project are Kaplan/McLaughlin/Diaz of San Francisco. Engineers for the Montgomery-Washington Building are Yoshpe Engineers of Sacramento.

IV. ENVIRONMENTAL SETTING

A. LAND USE

Downtown San Francisco and the Bay Area Region

In 1984, it was estimated that the C-3 District contained about 103.5 million gsf of building space over all land uses. About 60 percent of this space was office space. The next largest share was hotel space at 10 percent of the total, followed by retail at eight percent./1/

The Department of City Planning has compiled data on major office building construction citywide since 1960. (See Table B-3 in Appendix B). According to the City's data, in 1983, there were 64.3 million gsf of space in major office buildings throughout the City. Most of this office space is in the C-3 District. Between 1960 and 1979, office space was built at an average rate of 1.4 million gsf per year. Recently, office construction activity has risen to higher levels. The data compiled by the Department of City Planning show 12.2 million gsf built from 1980 through 1983, for an average rate of about 3.0 million gsf per year.

Downtown San Francisco is likely to continue to be the major office center in the Bay Area region. Forecasts of development between 1984 and 2000 prepared for the Downtown Plan Draft EIR estimate that an additional 21.7 million gsf of space in all uses would be built and occupied in the C-3 District. Most of this additional space (16.8 million gsf, almost 80 percent of the total) would be office space. According to the Downtown Plan forecasts, the rate of new office construction in the C-3 District would average aboat 1.1 million gsf per year between 1984 and 2000./2/

These forecasts of development for the Downtown Plan fall near the lower end of the range identified for the five Alternatives to the proposed Plan. The total addition of space built and occupied between 1984 and 2000 would range from 21.3 million gsf (Alternative 5) to 29.9 million gsf (Alternative 2). In all Alternatives, office space would represent the largest component of development. The smallest increase in office space would occur under Alternative 4 (15.4 million gsf), while the largest increase would occur under Alternative 1 (24.4 million gsf)./3/ Under Alternative 1, the rate of new office construction forecast between 1984 and 2000 would continue at the relatively high level of 1.7 million gsf per year./4/

The Department of City Planning maintains a list of cumulative office development in downtown San Francisco. (See Table B-2 and Appendix B text for a more detailed description of the contents of the list.) The list incorporates all office and major retail projects that are under formal review, approved but not yet under construction, and under construction in the greater downtown area. This area covers the C-3 District in addition to adjacent areas, such as the Northern Waterfront, Civic Center, and the area south of Folsom Street. As of the March 10, 1984 list, about 9.2 million gsf were under formal review, about 5.0 million gsf were approved, and aboaut 5.7 million gsf were under construction. In total, the list includes a net addition of about 19.9 million gsf: 19.0 million gsf of office space and 0.9 million gsf of retail space. The information on the list for the net addition of space accounts for about 2.7 million gsf of existing office and retail space that would be demolished for construction of these projects. About 13.2 million gsf of the 19.9 million gsf total are in projects located in the C-3 District.

In terms of land use, the most important factor in the regional consideration of cumulative development in downtown San Francisco is region-wide office development. Other land uses throughout the region, such as retail and hotel, are less affected by development in San Francisco. The office space market is more regional in nature.

Space in office buildings in the other eight counties of the nine-county Bay Area is estimated to be 27 million sq. ft. as of the end of 1979./5/ While

San Francisco has the majority of existing office space in the region, the rapid growth of office functions in other Bay Area counties has resulted in less than half of the new space in office buildings in the region being built in San Francisco. Forty-five percent of the dollar value of building permits issued for office construction in the region between 1972 and 1979 was for San Francisco development./6/ Because the average cost per sq. ft. for office construction is higher in San Francisco due to the predominance of high-rise office construction, the City's recent share, in terms of square footage of regional office space construction, can be inferred to be less than 45 percent.

San Francisco's role as a headquarters city and major business center for the West Coast stimulates office growth elsewhere in the Bay Area. As San Francisco firms expand, they look to suburban office markets to accommodate new functions and/or to attract a certain segment of the labor force. Moreover, as the costs of space in San Francisco have increased, due to high levels of demand, cost-sensitive firms have chosen locations in other cities or in expanding suburban locations.

Site Vicinity

Since publication of the Final EIR in November 1981, several land use changes have occurred in the vicinity of the Montgomery-Washington Building site. Several of the buildings that were in the planning stage or under review at publication of the FEIR have been completed or are under construction. Others have been approved for construction, and four new projects in the blocks adjacent to the project site appear for the first time on the latest cumulative list of San Francisco office construction dated March 10, 1984 (see Appendix B). These land use changes are noted in this site vicinity setting section.

No new projects have been constructed or proposed within the project site block (AB 208). The blocks immediately surrounding the project site block are: AB 195 (north), AB 196 (northeast), AB 207 (east), AB 228 (southeast), AB 227 (south), AB 226 (southwest), AB 209 (west) and AB 194 (northwest). ABs 194, 195 and 196 are located in the C-2 district (Jackson Square Historic District). ABs 207, 208, 227, and 228 are in the C-3-O district (Downtown

Office District). ABs 226 and 209 are in the C-3-G area (Downtown General Commercial District).

The continued development of high-rise office buildings in the downtown office district (C-3-O) is evident from the proposed and completed projects, including the Montgomery-Washington Building. On AB 227, the 19-story (230,500 gross sq. ft.) Bank of Canton is nearing completion and the 26-story (327,300 gross sq. ft.) office building at 505 Montgomery received Planning Commission approval on June 28, 1984. On AB 228, 560 Sacramento, a 33-story (103,200 gross sq. ft.) mixed use development project is proposed.

Smaller projects have been completed or proposed for the smaller-scaled Jackson Square Historic District (C-2 district). Specifically, on AB 195, a 2-story (3,938 gross sq. ft.) office building at 660 Washington Street has been proposed, and on AB 194, a 7-story (17,500 gross sq. ft.) office building at 732 Washington Street has been proposed. Development within the C-2 district, two to three blocks north of the project site, is generally consistent with the smaller scale of the C-2 district. About six office buildings with heights of between two and six stories have been completed recently or are under construction in this area.

Since publication of the FEIR, no further development has been completed or proposed for the C-3-G district immediately west and southwest of the Montgomery-Washington Building.

NOTES - Land Use

/1/ Downtown Plan Draft EIR, p. IV.B.17. The estimates of C-3 District building space for 1984 are based on 1981/82 data for the C-3 District collected for the Downtown Plan analysis. The Downtown EIR Land Use Inventory was conducted to provide a base case from which the land use impacts of the Downtown Plan and Alternatives could be analyzed. The Inventory data on C-3 District space by use and subarea are presented in Table IV.B.1, on p. IV.B.2 of the Downtown Plan Draft EIR. The estimates of land use change between 1981 and 1984 primarily reflect the projects under construction in the C-3 District as of mid-1982 and are presented on pp. IV.B.14 to IV.B.16 of the Downtown Plan Draft EIR. The text discusses the real estate market context for these short-term projections of land use change. It indicates that the amount of office space under construction exceeded the projected demand estimated according to longer-term employment growth forecasts prepared for the Downtown Plan analysis. Therefore, some of the space assumed to be built by 1984 (and

included in the 1984 totals identified herein) would be absorbed later in the 1980's. These sections of the Downtown Plan Draft EIR are hereby incorporated by reference pursuant to State CEQA Guidelines Section 15150. The C-3 District Land Use Inventory is available for public review at the Department of City Planning.

/2/ Ibid., pp. IB.V.34-35. This estimate accounts for new construction, as well as demolition and conversion of existing space.

The forecasts presented in this paragraph and the following paragraph for the Alternatives represent space that would be built and absorbed by 2000. Space that will be under construction and not yet occupied in 2000 is not included in the forecasts for 2000 for the Downtown Plan and Alternatives. Therefore, the annual average data from the forecasts are not directly comparable to annual averages for recent short-term (1980-83) office construction, as shown on the list compiled by the Department of City Planning. The short-term data include some projects that are not yet fully occupied.

/3/ Ibid., p. VII.B.4 and accompanying text.

/4/ Ibid., p. VII.B.2 and accompanying text.

/5/ Association of Bay Area Governments (ABAG), "Bay Area Office Growth", Berkeley, California, April, 1981, pp. 31-62. This number may be an underestimate because the sources for the report apparently do not always include small office buildings.

/6/ Ibid, p. 18.

B. TRANSPORTATION

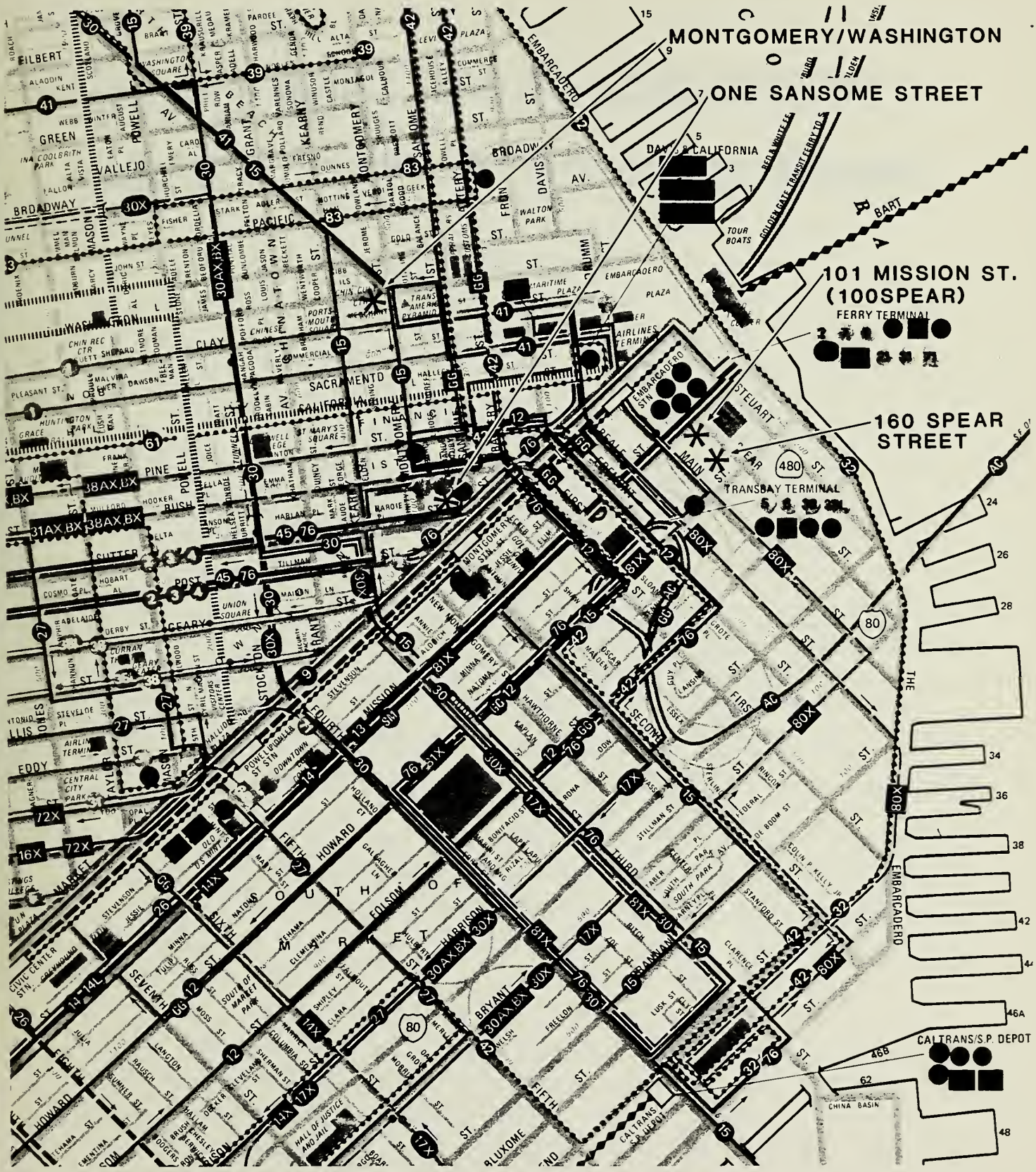
Downtown

Since the publication of the FEIR for the project, several changes to the transportation network in the downtown have occurred. Most noticeable are the Muni route changes. Figure 2, following page, shows the existing (1984) Muni system in the downtown area. Also shown are the locations of BART stations. Table 3, Transportation Impacts section, shows 1984 ridership on transit agencies serving the downtown area. When the data in Table 3 is compared to that in Table D-7, p. 274 of the project's FEIR, it can be seen that ridership on most transit agencies has been steadily increasing between 1981 and 1984. The comparison also shows that AC Transit and SPRR (CalTrain) have been experiencing losses of ridership in recent years. Capacity increases have occurred on several of the transit systems, most noticeably on BART, which has implemented a "short-headways" program, and on Muni, which has changed its basic route structure to provide additional zoned express service to the downtown and enhanced feeder service to BART.

Table 4, Transportation Impacts section, shows pedestrian volumes for 1984. When that table is compared to Table D-5, p. 273 of the project's FEIR, it is apparent that pedestrian volumes on the sidewalks have increased slightly, but not enough to change the pedestrian flow regimen from that reported in the project's FEIR.

The 1983 San Francisco Cordon Count (JHK and Associates, 1983) shows that vehicle traffic volumes crossing the Metropolitan Traffic District (MTD) boundary have not increased substantially since the last cordon count was conducted in 1965./1/ Thus, traffic conditions in 1984 are essentially unchanged from these 1981 conditions reported in the project's FEIR.

Parking availability in the downtown has continued to decline between 1981 and 1984, both as a function of new demand and from loss of existing space to new construction./2/ As a result of the declining availability of parking, occupancies in parking facilities would be higher than those reported in the project's FEIR.



SOURCE: SAN FRANCISCO MUNICIPAL RAILWAY
STREET AND TRANSIT MAP, AUGUST 1983

FIGURE 2
MUNI ROUTES IN THE
PROJECT VICINITY

NOTES - Transportation

/1/ The Metropolitan Traffic District (MTD) is the area roughly bounded by China Basin, the Embarcadero, Fourteenth St., Van Ness Ave., Bush St., Powell St., and Pacific Ave.

/2/ San Francisco Department of City Planning, C-3 District Parking Update, December 1982.

(The following material on air quality replaces information in the FEIR, p 44.)

C. AIR QUALITY

San Francisco's air quality, in general, is among the least degraded of all the developed portions of the Bay Area. Because of the prevailing westerly and northwesterly winds, San Francisco is more a generator of its own air quality problems (especially carbon monoxide (CO) and total suspended particulates (TSP)) and a contributor to those in other parts of the Bay Area (especially ozone), than a recipient of pollutants from elsewhere. This is because CO and TSP concentrations tend to reflect local emission sources; that is, concentrations are highest at the source and decrease rapidly as the pollutants are dispersed by wind. In contrast, ozone is not directly emitted but is a secondary pollutant formed in the atmosphere by a complex series of photochemical reactions involving reactive hydrocarbons and nitrogen oxides. Ozone air pollution is thus a regional phenomenon because the precursor pollutants are carried downwind as the photochemical reaction occurs.

The Bay Area Air Quality Management District (BAAQMD) operates an air quality monitoring station about three miles south of the site at 900 23rd Street. A five-year summary of the data collected and the corresponding ambient air quality standards are shown in Appendix D. These data show occasional excesses of the CO and TSP standards. In 1983 there was one exceedance of the state one-hour average ozone standard and also four exceedances of the state 24-hour average TSP standard. In 1982, the eight-hour standard for CO was exceeded once and the 24-hour TSP standard exceeded three times. The one-hour CO standard was never exceeded. (A more stringent one-hour CO standard went into effect January 15, 1983.) The only air pollutant to exceed standards in 1980 and 1981 was TSP; the 24-hour standard was exceeded six times in 1980 and once in 1981.

A special monitoring program, called a Hotspot program, was conducted at Battery/Washington in the winter of 1979/80./1/ The observed high 1 hour average CO concentration was 15 ppm, which is 5 ppm lower than the current state 1 hour average CO standard. The highest 8 hour average was 10 ppm, which exceeds the applicable state and federal standards by 1 ppm.

Another Hotspot monitoring program was conducted at 100 Harrison Street during the winter of 1980-81. The observed high eight-hour average concentration was 7.8 parts per million (ppm), and the highest 1-hour average concentration was 13 ppm. In 1982, a street level 8-hour average CO maximum of 14.5 ppm was measured at the street level monitoring station at 939 Ellis Street near Van Ness Avenue about a mile and one-half southwest of the proposed project. This data indicates that some locations in San Francisco, particularly those near high traffic volumes and congested traffic flow, may experience violations of CO standards under adverse meteorological conditions.

Highest annual pollutant concentrations in San Francisco, while exhibiting fluctuations due to variations in meteorology, have shown an overall improvement during the 1971-1983 period. No similar trend in the annual number of violations of standards is evident, although such occurrences are infrequent (six a year or fewer).

In 1979, emissions from motor vehicles were the source of 94% of the CO, 36% of the hydrocarbons (HC), 7% of the TSP, and 44% of the nitrogen oxides (NO_x) in San Francisco, while power plant fuel combustion was the largest single source of sulfur oxides, about 33% of the total. These percentages are expected to apply reasonably well to current conditions./2/

The nine-county San Francisco Bay Area air basin is designated by the California Air Resources Board (CARB) as a nonattainment area for O_3, CO and TSP. (Nonattainment means the federal ambient air quality standards for these pollutants have been violated within the past two to three years.) As required by the Federal Clean Air Act Amendments of 1977, a regional Air Quality Plan has been adopted for the Bay Area that establishes control strategies to attain federal and state standards by 1987./3/ Air quality control strategies include stationary and mobile source emission controls and transportation improvements to be implemented by the Bay Area Air Quality Management District (BAAQMD), Metropolitan Transportation Commission (MTC), and the CARB.

NOTES - Air Quality

/1/ Association of Bay Area Governments, AQMP Tech Memo 40, "Results of the 1980/1981 Hotspot Monitoring Program for Carbon Monoxide," Berkeley, California, January 1982.

/2/ Bay Area Air Quality Management District, Base Year 1979 Emissions Inventory, Summary Report (Revised), San Francisco, California, July 1, 1982.

/3/ Association of Bay Area Governments (ABAG), BAAQMD and MTC, 1982 Bay Area Air Quality Plan, Berkeley, California, December 1982.

D. RESIDENCE PATTERNS AND HOUSING

Introduction

From the cumulative perspective of both the amount of future downtown development and the regional context for the impacts of this development, two aspects of the analysis of housing-related impacts are important: residence patterns and housing market implications. Residence patterns describe the distribution of downtown workers by place of residence for San Francisco and the rest of the Bay Area region. Analysis of these patterns is useful in assessing the degree to which San Francisco residents benefit from job growth, in estimating travel demand, in considering the relationship between downtown job growth and labor force and housing throughout the region, as well as in considering the housing market effects of development. The discussion of housing market implications focuses on the link between employment growth and the availability and price of housing, how changes in the housing market could affect various groups of consumers, and how residents' circumstances could change as a consequence of these effects.

As background for the subsequent cumulative impact discussion (Section V.E), this section presents current residence patterns for downtown workers, discusses trends in labor force, employment, and population for the City and the region, and describes current housing market conditions in San Francisco and the region.

Residence Patterns for San Francisco and the Region/1/

Current Conditions

In 1984, it is estimated that 159,000 C-3 District workers live in San Francisco. This group represents about 45 percent of all employed residents of San Francisco. Most C-3 District workers (55.5 percent) are estimated to live in San Francisco in 1984. The next largest group (73,000 or 26 percent), live in the east bay. About 35,000 (11.5 percent) live on the peninsula and about 19,000 (seven percent) in the north bay. While, as mentioned above, these workers represent a relatively large share of the

employed population in San Francisco (45 percent), they represent relatively smaller shares of the employed population in each of the other areas (less than 10 percent in each).

Changing Conditions and Trends/2/

The current conditions described above are not static, and in fact, have been changing over time. Trends indicate that the number of San Francisco workers who live in the City is increasing. The percentage that they represent of total City employment is declining. Changes in population, housing, labor force, and employment in San Francisco and the rest of the region provide background for these trends./3/

Changes in the demographic composition of the City's population have resulted in a growth of employed persons (an increase of 24,200 from 1970 to 1980) despite the overall decline in total population (a decrease of 36,700 from 1970 to 1980). The growth of employed persons largely reflects higher labor force participation than in the past since the number of people in their working years (ages 16-64) has been relatively constant.

The number of households and housing units in the City has continued to increase, although by a relatively small amount. Given the population decline, the average number of persons per household has also decreased. Because of the changing composition of the population, however, the number of adults and of employed adults per household has increased.

Demographic trends related to the population and labor force characteristics of the region <u>outside</u> of San Francisco show similarities to the trends for the City described above. From 1970 to 1980, the growth of employed persons exceeded the growth of the total population. Employed residents in the rest of the region increased by 670,000 (nearly 45 percent growth) over the past 10 years, while population increased by 588,000 persons (about 15 percent growth). This reflects both the passing of the "baby boom" generation into their labor force years and the increasing labor force participation of women. The growth of employed residents exceeded the growth of households

and of housing units, so the average number of workers per household increased. The main differences between San Francisco and the rest of the region are the magnitudes of the changes, as the amount of growth in population and employed persons was much larger in the rest of the region than in San Francisco.

In the midst of these changes in population and labor force, business activity and employment have continued to grow in San Francisco. Jobs have grown at a faster rate and by a larger amount than the number of employed residents in the City. Thus, although the number of San Francisco jobs held by City residents has increased, the percent of jobs held by residents has declined. There has also been an increase in the percentage of San Francisco jobs held by persons living elsewhere in the region. This indicates the increasing relative importance of housing and labor force outside of San Francisco to jobs in the City.

When considered from the perspective of City residents, the number of employed City residents working in San Francisco increased from 1970 to 1980. Although the percentage of residents working in San Francisco remains high (86 percent in 1980) this percentage has been declining. Reasons for this trend include the large growth of jobs in other counties of the region and the relocation of some San Francisco jobs to other counties. (San Francisco's share of total regional employment has declined, even though the City's employment has increased substantially.) Another factor is the increase in households with more than one worker which increases the likelihood that some workers will commute to jobs outside the City.

The trends described above incorporate a combination of many individual changes in employment and place of residence. Changes in the place of residence of San Francisco or C-3 District workers occur as individuals are newly employed in San Francisco or the C-3 District who had not previously worked there and as both existing and newly employed workers move within the region.

The changes which result in individuals being newly employed in the City (who had not previously worked there) can affect overall residence patterns if those newly employed have different household and housing characteristics from those whom they replaced or from all other workers in the City. They are likely to have different characteristics if the mix of types of jobs is changing (such as more office jobs relative to other types of employment), if the demographic characteristics of the workforce in general are changing (such as changes in age distribution or ethnic/racial characteristics) or if there are changes in the distribution of the labor force within the region (such as more growth of labor force members in the areas surrounding San Francisco than in the City itself or substantially larger growth in San Francisco employment than in employed City residents).

Changes in residence patterns also reflect housing market factors. Housing market factors have been particularly important in the recent past since the housing choices (housing types, prices, rents, locations) available have changed dramatically over the past five to ten years. Housing is now more costly relative to incomes and to other goods and services than it was in the past. Further, a greater share of the region's housing is now located outside of San Francisco and City housing has become more costly relative to housing in many other parts of the region than it once was. While housing choices change over time, their effect on residence patterns primarily occurs when a household enters the market to purchase or rent housing. Thus, as workers change their place of residence a greater share are likely to live outside of San Francisco and those who choose to reside in the City may have different characteristics from the average of all other employees who secured housing in San Francisco under a different market situation.

Housing Market Conditions in San Francisco and the Bay Area Region

Housing Market Context

Since the early 1970's, housing prices and rents have increased dramatically in San Francisco and throughout the Bay Area. Demand for housing has been strong and supply has not kept pace with demand in many areas. In addition, in the early 1980's there were major changes in financial markets which

substantially increased the cost of money for housing. Many different factors contribute to the current housing market situation. These include changing lifestyles, changing demographic and household characteristics, changing household incomes, employment growth, the attractiveness of the Bay Area as a place to live, the availability and cost of financing, the attractiveness of real estate as an investment, no-growth policies in some communities, and the increasing scarcity of land in other communities.

As a result of all of these factors, many households now allocate a greater share of their financial resources to housing, and the housing choices available at various prices and rents have changed. Many people cannot now afford the housing they prefer and many are not housed at the standard that, until recently, they had come to expect.

Changing Conditions In San Francisco's Housing Market

Over the decade from 1970 to 1980, net additions to the City's housing stock included 6,200 units for an increase of two percent. About 1,900 units were added from 1980 through 1982. Most of the units added were for-sale housing. Overall, about one-third of the City's stock continues to be owner-occupied and about two-thirds renter-occupied. Among Bay Area counties, San Francisco has the largest percentage of units that are renter occupied./4/

This net addition represents low growth of the housing stock relative to the strength of demand over this period. The low vacancy rate in San Francisco highlights the severity of the housing market pressures in San Francisco. Data from the Federal Home Loan Bank show a vacancy rate of 0.8 percent for San Francisco. San Francisco had the lowest housing vacancy among the nine counties of the Bay region in 1980./5/

These market pressures are part of the explanation for the substantial increase in housing prices in the City. Market trend data based on appraisals indicate that housing value increases averaged 8.5 percent per year in the early 1970's and over 23 percent per year from 1975 to 1980. From 1980 to 1983, appreciation has slowed to around an annual average of six percent.

San Francisco housing prices remain above those for housing in many other parts of the region. The market trend data indicate that the rates of increase in San Francisco have exceeded those in most other areas./6/

Rents in San Francisco have also increased. Census data indicate that median contract rent more than doubled from 1970 to 1980, for an average annual growth of 7.6 percent. Rents in San Francisco generally cover a wider range than rents in other parts of the region, including some of the lowest rent housing and some of the most expensive rental units in the region./7/

Despite rising housing prices and rents, the private market continues to be unable to produce enough new housing to relieve competitive pressures. Because of the high costs of land, financing, and construction, the private market cannot produce housing that is affordable to many households. There is particular difficulty in producing rental housing, since residential rents, unlike for-sale housing prices, have not kept pace with rising construction and land costs or with inflation.

Incomes of City residents have not kept pace with increases in the costs of housing. During the 1970's, on average, income increased by about 135 percent over the period while housing costs overall (combining median prices and rent) went up about 165 percent./8/ Thus, the percentage of income allocated to housing increased.

The percentage of income spent on housing is higher for lower income households. The percentage declines as income increases. Across income categories, the percentage of income spent on housing is higher for renters than for owners. For example, Census data show that of the 31 percent of households with incomes under $10,000 in 1979, on average, the renters spent 48.6 percent of their income for housing and the owners spent 26.0 percent for housing. Of the 39 percent with 1979 incomes of $20,000 or higher, the renters spent 15.7 percent of their income on housing while the owners spent 11.2 percent./9/

In the current housing market, there continue to be incentives to upgrade existing housing. Consumers priced out of higher priced neighborhoods are often attracted to other areas where housing can be secured initially at lower costs and investments made to upgrade the units. As this occurs, the desirability of the area improves, prices and rents rise, and there are changes in the types and incomes of the households living in the neighborhood. Moreover, the housing stock at lower prices and rents is reduced. This phenomenon (often called "gentrification") has occurred in areas of San Francisco. It has occurred primarily in neighborhoods with housing priced at below average levels but which is not the lowest priced housing in the City. In recent years, increasing preferences for central city neighborhoods and older housing and an increase in the types of households with these preferences have combined with overall competitive market conditions to support upgrading of this type.

Regional Perspective on Housing Market Conditions

Most of the housing market conditions described above for San Francisco are applicable throughout the Bay Area. Increases in home prices and in interest rates during the past decade have raised the cost of ownership housing. As a result, many first time homebuyers and new entrants into the region's housing market now have difficulty affording Bay Area housing. In the rental housing market, a large number of households also face an affordability problem. The lack of new construction and continued strong demand support upward pressure on rents. Among renters, there are many lower income households who are faced with increasing difficulty securing affordable housing.

Although these conditions exist to some extent in other parts of the country, the Bay Area remains one of the most desirable places to live and has one of the most competitive housing markets in the nation. Because of the limited supply of land in San Francisco, the role of the City as the employment center for the region, and the demographic characteristics of the City's population, the region's market conditions, in terms of supply, demand, and price, are at their extreme in San Francisco.

Between 1970 and 1980, 436,200 housing units were added in the Bay Area. Most of the additions were in the east bay and the peninsula, each with about

40 percent of the total increase. The largest percentage increase in housing over the period occurred in the north bay counties./10/

The shortage of supply relative to demand is evidenced in the vacancy rates for Bay Area counties. In 1982, the vacancy rate in each Bay Area county was below two percent. With the exception of Solano County (where the 1980 vacancy rate was three percent) this situation has persisted since 1980./11/

Market trend data on the value of single family residences in the Bay Area reflect the strong demand for housing in the region. Over the region as a whole, housing values increased almost four-fold between 1973 and 1983; the annual rate of increase in value was about 14 percent per year, compounded. The pattern is similar among east bay, peninsula and north bay housing sub-markets. In San Francisco, the data indicate somewhat stronger demand and more market pressure on existing units than the average for the region./12/

NOTES - Residence Patterns and Housing

/1/ The data and information presented in this sub-section are based on a survey and analyses of C-3 District employment and residence patterns prepared for the Downtown Plan Draft EIR. This information, therefore, does not account for all workers in the greater downtown area; it does, however, describe the majority of the workforce in that area. The residence patterns for C-3 District workers in 1984 are presented in the Downtown Plan Draft EIR on pp. IV.D.36-39 and, in the context of future residence patterns, in Table IV.D.15 on p. IV.D.64. The survey results related to the residence patterns of C-3 District workers are presented in the setting section on Residence Patterns and Housing (Section IV.D) in the Downtown Plan Draft EIR, which is available for review at the Department of City Planning.

/2/ The trends summarized here are discussed in more detail with relevant tables in the Downtown Plan Draft EIR, pp. IV.D.42-53, which are hereby incorporated by reference pursuant to State CEQA Guidelines, Section 15150.

/3/ Population and employment data from the U.S. Census, 1960, 1970 and 1980 for San Francisco and the region are the basis for the following discussion.

/4/ U.S. Department of Commerce, 1970 Census of Population and Housing, and 1980 Census of Housing and San Francisco Department of City Planning, Residence Element of the Comprehensive Plan, June, 1984.

/5/ Real Estate Research Council, Year-End 1982 Report - August, 1983,, Volume 34/Numbers 2 and 4.

/6/ Real Estate Research Council, Market Trend Report - April, 1983, Volume 35/Number 1.

/7/ U.S. Department of Commerce. 1970 Census of Population and Housing, and 1980 Census of Housing.

/8/ Ibid.

/9/ Ibid.

/10/ Ibid.

/11/ Real Estate Research Council, Year-End 1982 Report - August, 1983, Volume 34/Numbers 2 and 4.

/12/ Real Estate Research Council, Market Trend Report - April, 1983, Volume 35/Number 1.

V. ENVIRONMENTAL IMPACTS

A. INTRODUCTION TO CUMULATIVE IMPACT ANALYSIS

Comparison of Two Approaches

Two approaches are used to assess cumulative impacts. The "Downtown Plan forecast" approach presents a cumulative scenario for C-3 District land use change, employment growth, and residence patterns between 1984 and 2000. The forecasts are based on analysis of policies affecting the size, cost and location of new development, in the context of underlying local and regional economic conditions influencing the demand for space. The "list-based" approach uses the March 10, 1984 list of projects in the greater downtown area that are under construction, approved, and under formal review by the Department of City Planning as the basis for estimating future activity. The space in projects on the list represents foreseeable future development which is added to the base year (1984) conditions.

In the subsequent cumulative impact sections, the project's effects are compared to the overall effects within each of these two cumulative contexts. Because of several essential differences between the two approaches, however, estimates of cumulative effects derived from each approach cannot be directly compared.

The following chart (Figure 3) highlights the differences between the Downtown Plan forecast approach and the list-based approach. Generally, the basic difference is that the Downtown Plan approach accounts for changes to a range of land uses as well as changes over time in worker characteristics and behavior, while the list-based approach is limited to known projects of certain types and assumes unchanging characteristics and behavior. These two approaches are alternative means of assessing the future cumulative context for downtown development. They use different available data sources and information and different assumptions. The specifics are listed in the chart.

Figure 3: COMPARISON OF CUMULATIVE IMPACT ASSESSMENT METHODOLOGIES

	Downtown Plan Forecast Approach	List-Based Approach
Focus of Impact Assessment	• Impacts of C-3 District land use and and employment within context of rest of City and region	• Impacts of land use and employment in the greater downtown area (including C-3 District and adjacent areas) within context of rest of City and region
Timeframe	• 1984 base year	• 1984 base year
	• Changes in C-3 District land use and employment forecast to occur between 1984 and 2000	• Changes in greater downtown land use and employment determined by build-out of March 10, 1984 List of Cumulative Office Development In Downtown San Francisco. (Although no date is attached to this build-out, it could occur between 1990 and 2000)
Land Use	• 1984 base year includes all land uses	• 1984 base year includes all land uses
	• Incorporates changes over time in office, retail, hotel, industrial, and all other C-3 District space	• Incorporates net additions of office and retail space in greater downtown area as shown on the List
	• Reflects changes in response to market demands for space within context of C-3 District planning policies	• Reflects changes as a result of development of projects on the List
	• Incorporates new construction, demolitions, and conversions for all land uses	• Incorporates new construction and demolition of office and retail space and conversions to office and retail uses as included on the List
	• Incorporates more intensive use of space (both existing and new) over time. (e.g. employment density for management/technical office is 276 gross sq. ft. of occupied space per employee in 1984 and 267 gross sq. ft. per employee in 2000)	• Intensity of use of space does not change over time. (e.g. employment density for management/technical office is always 276 gross sq. ft. of occupied space per employee)
Employment	• 1984 base includes all C-3 District employment	• 1984 base includes all employment in the greater downtown area
	• Changes over time incorporate increases and decreases in all types of permanent employment directly associated with a land use, in building maintenance/security employment, and in construction employment	• Changes over time incorporate the growth of office and retail employment as a result of development of the projects on the List
Residence Patterns and Housing	• Residence patterns change over time reflecting changing regional labor force, housing market, employment and transportation factors. (e.g. the percentage of C-3 District management/technical office workers living in San Francisco is currently 49% and would decline to 44% in 2000)	• No change in residence patterns from current conditions (e.g. the current 49% of C-3 District management/technical office workers living in San Francisco is assumed to continue to apply)
Transportation	• Trip generation has been adjusted to account for travel between buildings (such as between office and retail uses) which does not leave the downtown	• No adjustment made to trip generation; all trips for buildings on the List counted as new travel in or out of downtown
	• Modal split changes over time reflecting capacity improvements, changing residence patterns, and behavior adaptations	• No changes from current modal splits are assumed
	• Includes growth of local and regional non-C-3 District travel	• Local and regional non-C-3 District travel assumed to remain constant at 1984 levels except for addition of travel due to development of the projects on the List
Key Reference	• Downtown Plan Draft EIR, EE81.3, March 16, 1984	• Transportation Guidelines for Environmental Impact Review: Transportation Impacts, September, 1983

Comparison of the Project to Cumulative Development in the C-3 District and the Greater Downtown Area

The two approaches to cumulative assessment of transportation, air quality, energy and housing impacts start with estimates of building development. Over the 1984-2000 period, a net addition of 21.7 million sq. ft. of space is forecast for the C-3 District under the Downtown Plan. This estimate falls near the lower end of the range represented by the five Alternatives to the Plan (between the 21.3 million sq. ft. net addition forecast for Alternative 5 and the 29.9 million sq. ft. net addition forecast for Alternative 2)./1/ As of March 10, 1984, the City's list of cumulative office development in downtown San Francisco included the net addition of 19.9 million sq. ft. of office and retail space in the greater downtown area.

The project (232,100 sq. ft. of net additional office and retail space) can be compared to each of these estimates of cumulative development. The project is in the C-3 District and would be completed during the 1984 to 2000 period. It would represent 1.1 percent of the total increase in space forecast for this area under the Downtown Plan. The project is also on the list of cumulative office development and would represent about 1.2 percent of the total net additional space in projects on the list.

NOTE - Introduction to Cumulative Impact Analysis

/1/ The Alternatives to the Downtown Plan are summarized in the Downtown Plan Draft EIR, EE81.3, published March 16, 1984, in Section VII., Alternatives. Alternative 1 is the "Planning Code Alternative"; Alternative 2 is the "Chamber of Commerce Alternative"; Alternative 3 is the "Proposition 'O' Alternative"; Alternative 4 is the "San Franciscans for Reasonable Growth Alternative"; and Alternative 5 is the "Department of City Planning Alternative".

(The following material replaces cumulative impact analyses found in the FEIR on various pages between p. 85 and p. 94.)

B. TRANSPORTATION

TRAVEL DEMAND ANALYSIS

Project Travel Demand

On the basis of land use, the project described in the FEIR would generate about 4,340 net new person trip-ends (pte) per day./1/ About 4,040 pte would be from the office and retail space, while about 300 pte would be from the residential space in the project. These figures include trips made by auto, public transit, service vehicles, and other modes (and include trips by visitors, employees, and residents). Travel generated by originally existing office and retail uses on the project site has been subtracted from the total new travel to give the net new travel from the site. Projected p.m. peak-period and peak-hour trips by mode expected to be generated by the project are shown in Table 1. About 650 new outbound trips would occur during the p.m. peak period from the project, of which about 400 would occur in the p.m. peak hour./2/

Modal assignments have been made on the basis of future modal splits for the year 2000 contained in the Draft EIR for The Downtown Plan (EE81.3)./3/ The future modal splits have been applied to the project travel for the purpose of comparing project travel with future travel demand on the transportation system serving San Francisco. The modal splits used were derived from aggregate data for the C-3 District, the zoning district that contains the project site, and thus represent an average condition. The actual modal split for travel from the project may vary from the C-3 District average. However, because the travel demand forecasts used to derive the average modal split data include the travel from the project, application of the average modal split data to project travel appears to be sufficiently accurate for purposes of comparison.

Cumulative Travel Demand

Analysis of the transportation impacts of cumulative development in San Francisco EIRs has been the subject of considerable public discussion. To date, cumulative analysis has been conducted on the basis of a list of proposed development in the greater downtown area (see Table B-2, Appendix B, for the March 10, 1984 list of these projects). The Downtown Plan Draft EIR method is a refinement of the transportation analysis process that uses projections of employment growth, independent of a list of proposed projects, to project future travel./4/

TABLE 1: PROJECTED OUTBOUND TRAVEL DEMAND BY MODE FROM THE PROJECT (pte/a/)

Travel Mode	P.M. Peak Period/b/	P.M. Peak Hour/b/
Drive Alone	95	60
Car/Vanpool	100	70
Muni	170	90
BART	130	90
AC Transit	40	20
SamTrans	10	5
SPRR	10	10
GGT Bus	30	20
Ferry	5	--
Walk Only	50	30
Other	10	5
TOTALS (rounded)	650	400

/a/ Person trip-ends.
/b/ The peak hour occurs during the two-hour peak period of 4:00-6:00 p.m.

SOURCE: Environmental Science Associates, Inc.

As discussed in Appendix J of the Downtown Plan Draft EIR, transit service improvements have been assumed to be implemented by the year 2000. The service improvements assumed to occur correspond to the vehicle acquisition portions of the 5-Year Plans for Muni, AC Transit, SamTrans, CalTrain, and Golden Gate transit. In BART, both the vehicle acquisition program and the

trackage improvements (Daly City tail track) were assumed to occur. These planned improvements would allow system capacities to keep pace with demand increases over time. The Downtown Plan Draft EIR transportation analysis also assumes that regional auto use will continue to change over time in response to increasing levels of congestion on the bridges and freeways serving the City. The analysis projects a shift from single-occupant auto use (drive alone) for commuting to ridesharing (carpool, vanpool), and to transit use. The assumptions of continuing shift from auto to transit and ridesharing, most apparent in the 2000 modal splits, are made on the basis of long-term trends in transit use in the San Francisco commute corridors. Census data show that in the period 1970 to 1980, transit use for commuting increased. Similarly, Bay Bridge data show that ridesharing has been increasing over the last seven years. Thus, the shift to transit and ridesharing is well-established in San Francisco commute corridors.

The travel data presented in the Downtown Plan Draft EIR transportation sections (and in this report) are projections of total demand on the transportation system serving San Francisco. The projections comprise three components of travel demand. Two of the components were developed through an intricate travel modelling process for the C-3 District of San Francisco. These first two components of travel demand are C-3 District work (employee journey-to-work) travel and C-3 District non-work (all other) travel. The third component is non-C-3 District travel, which was forecast through an analysis of regional trends adjusted for the effect of development in the C-3 District. Non-C-3 travel is defined as travel that has neither an origin nor a destination in the C-3 District. Thus, non-C-3 travel includes travel to and from other parts of downtown and trips through San Francisco from other parts of the region. Employment projections are not specifically used in the non-C-3 travel analysis.

Although the C-3 District transportation modelling process used analytical techniques common to travel forecasting, several portions of the process are unique to the C-3 District. The uniqueness is the result of the development of two major data bases - an inventory of existing land uses in the district and surveys of employees and employers in the district. The data developed from the surveys and the inventory have been used as the basis for forecasts

of development and employment growth in the C-3 District. Sections IV.B, Land Use and Real Estate Development; IV.C, Business and Employment; IV.D., Residence Patterns and Housing; and Appendices G, Land Use and Real Estate Analysis; H, Business and Employment Analysis; and I, Theoretical Discussion of Housing Market Effects/Methodology for Forecasting Residence Patterns, of the Downtown Plan Draft EIR, which contain detailed information about methods used to project future employment in the C-3 District, are incorporated by reference into this report and summarized below and in the Land Use and the Residence Patterns and Housing sections of this Supplemental EIR.

The cumulative analyses for forecasting future land use, employment, and residence patterns are described in the Downtown Plan Draft EIR. Appendix sections therein describe the methodology, identify the factors considered, and identify the types and sources of data used. A concise description of the major components of the process of developing employment and land use development forecasts is presented in the flow charts in Figure H.1 and Figure G.1. The factors considered in forecasting residence patterns are identified in the diagram in Figure I.1.

The Downtown Plan Draft EIR approach for forecasting future land use, employment, and residence patterns is based on a conceptual framework of the process of urban economic development. The analytical procedures incorporate a variety of types and sources of data and information concerning past, current, and likely future conditions regarding economic, real estate, demographic, and public-policy factors.

The employment projections in the Downtown Plan Draft EIR for the year 2000 exceed the employment projected using the current list-based cumulative analysis, as the list cannot take into account projects not yet proposed. The employment forecasts have been used as the basis for the travel demand modelling process. As described above, the C-3 District travel comprised two of the three components of total travel. Because of the use of the employment projections in the travel demand modelling process, the transportation forecasts for the year 2000 are independent of lists of cumulative development.

Through a complex calibration and validation process of comparing projections of travel demand modelled on the basis of the survey of C-3 District employees to actual travel from measurements made by state, city and regional agencies, work and non-work travel demand from the C-3 District was modelled for the years 1984, 1990 and 2000. The modelling process comprises the following steps:

- Trip generation rates (empirical measures of total travel to and from a specific land use) were applied to employment forecasts by business activity (i.e., different rates were used for various land uses).

- The total travel from the C-3 District was distributed to seven Bay Area zones on the basis of projections of future employee residence patterns and origin-destination patterns for non-work travel.

- Trips to each of the seven regional zones were assigned to travel modes on the basis of modal splits (distribution of travel over the transportation modes -- auto, transit, etc.) developed from the C-3 District surveys.

At this stage of the process, the model forecasts total travel from the C-3 District. To complete the process and to allow analysis of the effect of travel demand from C-3 District development on the transportation network, the non-C-3 travel demand was analyzed. The total travel demand was calculated by summing C-3 District work and non-work travel and non-C-3 travel at sub-regional measuring points (called screenlines) located at or just beyond the San Francisco County Line (except for Muni and BART westbay service which were measured inside San Francisco, outside the downtown). The total travel demand was then compared to available service (capacity) at the screenlines and operating conditions (demand-to-capacity ratios) were analyzed assuming planned improvements. The results of those analyses are summarized later in this section.

For future years, the C-3 travel modelling process was modified to incorporate changes in travel patterns (modal split changes, different travel times), employee residence patterns and changes in land use patterns. The process

incorporates the dynamic aspects of changing Bay Area travel patterns, rather than assuming a fixed, unchanging condition over time. An example of past changes in travel patterns can be seen in the amount of carpooling activity on the Bay Bridge. In 1977, peak average vehicle occupancy westbound on the Bridge was 1.7 persons per vehicle. By 1983, in response to increasing congestion and increased travel and parking costs, peak average vehicle occupancy westbound increased to 2.1 persons per vehicle./5/

The non-C-3 travel demand was forecast through the use of growth factors developed on the basis of historic trends in regional and sub-regional travel./6/ Historic growth rates (factors) have been used to project increases only for non-C-3 District travel at the regional screenlines. No other use of historic growth rates has been made in the transportation analysis. Because of the individual and unique nature of each of the transportation screenlines, each growth rate is based on data for that location. Thus, the growth rates for freeways project growth in auto trips, while the growth rates for transit project growth in ridership.

Each of the historic growth rates inherently contains information about regional growth in travel patterns and thus incorporates not only growth from other parts of San Francisco, but from elsewhere in the region. As an example, the historic growth factor for trips southbound on US 101 includes travel that crosses the Bay Bridge or the Golden Gate Bridge as well as travel from San Francisco. However, the growth is projected as growth in auto travel and cannot be related directly to growth in employment in San Francisco.

The other process used to forecast cumulative transportation impacts starts with a list of cumulative office and retail development (net new office and retail space) proposed, approved or under construction in the greater downtown area. From that list, through the use of static employment densities for office and retail uses and established trip generation rates, forecasts of travel demand are made. The forecast travel is assigned to modes on the basis of modal split factors which are assumed not to change over time. The Transportation Guidelines for Environmental Impact Review: Transportation Impacts (Department of City Planning, September 1983, hereinafter Transportation Guidelines) describe the process and the data used to calculate transportation impacts from the list-based development.

The current list, shown in Table B-2, has about 19 million gross sq. ft. of net new office space and about 0.9 million gross sq. ft. of net new retail space. On the basis of the Transportation Guidelines analysis, the list-based development would generate approximately 80,000 p.m. peak-period person trip-ends, of which about 49,000 would occur in the p.m. peak hour. Table 2 shows a comparison of the projections of travel demand from the list-based analysis and from the Downtown Plan Draft EIR for the year 2000. While the list contains development both inside and outside the C-3 District, the Downtown Plan Draft EIR makes specific projections only for C-3 District development, and the travel components shown in Table 2 are for the C-3 District only; therefore, for purposes of comparison, travel from the C-3 component of the list (about 13 million gross sq. ft. of net new office space and 0.4 million gross sq. ft. of retail space) has been analyzed for comparison with the projections from the Downtown Plan Draft EIR for Alternatives 1 to 5 and the Downtown Plan.

As shown in Table 2, travel demand from the Alternatives in the Downtown Plan Draft EIR ranges from Alternative 1 (about 17% higher than the Downtown Plan) to Alternative 4 (about 5% lower than the Plan). Although there is a range, the spread is within the level of accuracy of the transportation analysis, and thus, statistically, the transportation impacts of the Alternatives are equivalent to those of the Downtown Plan.

Several anomalies are apparent in the data shown in Table 2. The major anomaly is that, while the C-3 component of the list would generate about half as much travel as do the Downtown Plan and the five Alternatives, the list-based analysis yields projected travel demands within San Francisco (inside and outside the C-3 District) that exceed those generated by the Downtown Plan and the Alternatives. An explanation of this major anomaly is presented in the following paragraphs.

The difference in total travel results in part from the different time frames of the list and the Downtown Plan Draft EIR. The Downtown Plan Draft EIR established 1984 as the baseline year and 1990 and 2000 as target study years. Estimates of growth were made on the basis of projections for each of the target years for the range of alternatives. In contrast, the projects

TABLE 2: COMPARISON OF LIST METHOD AND ECONOMIC FORECAST METHOD - OUTBOUND P.M. PEAK-HOUR CUMULATIVE TRAVEL DEMAND FOR THE C-3 DISTRICT (person trip ends)

Mode of Travel	3/10/84 List/a/	Downtown Plan (1984-2000)/b/	Alternative 1 (1984-2000)/b/	Alternative 2 (1984-2000)/b/	Alternative 3 (1984-2000)/b/	Alternative 4 (1984-2000)/b/	Alternative 5 (1984-2000)/b/
Work Person Trip-ends	22,100	41,400	47,600	46,200	44,400	39,100	39,700
Other Person Trip-ends	8,200	12,100	14,700	14,200	13,400	11,800	11,800
Total Person Trip-ends	30,300	53,500	62,500	60,500	57,900	51,000	51,600
Muni Northeast	900	1,600	1,700	1,600	1,600	1,700	1,700
Northwest	3,700	1,800	2,000	1,900	1,800	1,800	1,800
Southwest	3,100	1,100	1,100	1,000	900	800	800
Southeast	600	1,100	1,000	1,000	1,000	600	700
BART Transbay	4,500	11,800	13,300	13,100	12,700	11,300	11,300
Westbay	1,900	2,400	2,800	2,700	2,600	2,300	2,300
AC Transit	1,700	200	600	500	300	-100	-100
GGT Bus	1,100	3,200	3,700	3,600	3,500	2,700	3,100
Ferry	300	800	800	800	800	800	800
SamTrans	300	1,200	1,300	1,300	1,200	1,000	1,100
SPRR/CalTrain	500	1,800	2,000	1,900	1,800	1,700	1,700
Regional Auto/c/							
Golden Gate Bridge	370	410	630	590	540	390	370
Bay Bridge	960	1,250	1,550	1,540	1,510	1,060	1,110
Bayshore Freeway (U.S. 101)	420	470	650	620	590	400	400
Interstate 280	420	470	650	620	590	400	400

/a/ Travel from only those projects on the list that are located inside the C-3 District. The list also contains development located in the greater downtown area outside the C-3 District; travel from those projects has been included in the list-based travel shown in the remainder of this section.
/b/ Travel from the C-3 District only. The analysis used in the Downtown Plan Draft EIR assumes growth in regional travel that is not shown above; it is discussed in the remainder of this section.
/c/ Vehicle trip-ends; calculation made on the basis of 2.7 persons per carpool and 12 persons per vanpool. Person trip-ends on transit cannot be added to vehicle trip-ends to obtain total person trip-ends because of the varying numbers of persons per vehicle.

SOURCE: Environmental Science Associates, Inc.

included on the Cumulative List span a period from 1984 to sometime in the early or mid-1990's when completion of all projects on the list or a similar amount of square footage would be expected./7/ This is one of the major reasons why results of impact analyses using these two forecasting methods are not directly comparable.

The variations in travel by trip purpose (work, other) and by travel mode (as shown in Table 2) between the list-based method and the Downtown Plan Draft EIR method can be explained by differences in the methodologies and data bases used to forecast the travel demand. The list-based analysis employs single-use trip generation data to estimate total travel through the process of adding together the trip generation estimates from all the individual buildings on the list. These single-use trip generation rates do not incorporate any discounting factors to account for trips going from one building to another within the Downtown. Studies for the Downtown Plan Draft EIR have confirmed that there is considerable travel between land uses in the downtown area. Thus, the list-based analysis adds each trip as if it were a new trip in or out of the downtown and overestimates the total number of peak-hour trips.

The Downtown Plan Draft EIR travel demand model has refined the trip generation process by incorporating discounting factors that adjust the trip generation rates to give travel to and from the C-3 District as a whole; it does not include trips internal to the C-3 District. Although the Downtown Plan Draft EIR process projects proportionately more work travel than does the list-based analysis, observations show that the Downtown Plan Draft EIR forecasts more closely resemble actual travel demand that would result from downtown development.

The differences in distribution of travel among modes (shown in Table 2) are the product of refinements in the regional distribution and modal split analyses in the Downtown Plan Draft EIR process. The list-based analysis assumes a static (unchanging over time) regional distribution and static modal splits. The Downtown Plan Draft EIR analysis has incorporated changes in both the regional trip distribution (reflecting projected availability of housing)

and the modal splits (reflecting projected availability of roadway and transit capacity in the future).

The list-based analysis yields more San Francisco travel (as shown by larger Muni numbers for the list-based analysis in Table 2) than does the Downtown Plan Draft EIR analysis, because the Downtown Plan Draft EIR analysis projects a declining availability of housing in the City. Thus, as the downtown work force increases, the percentage of workers living in San Francisco would decrease. The list-based analysis assumes that the percentage of workers living in San Francisco would remain constant over time and thus overestimates the numbers of future employees living in the City and underestimates the numbers of regional commuters.

Other differences in travel among the modes, particularly regional auto and AC Transit, are the result of the refined modal split process used in the Downtown Plan Draft EIR. As the list-based analysis assumes that modal split remains constant over time, the list-based analysis is insensitive to the abilities of transit agencies and regional roadway systems to serve future demand. The Downtown Plan Draft EIR analysis has assumed that the modal split would change over time in response to the increasing levels of congestion at the regional screenlines (described in the Downtown Plan Draft EIR). Thus, because the Bay Bridge is at or near capacity in the p.m. peak hour eastbound, the Downtown Plan Draft EIR modal split projects a proportionately lower increase in auto demand to the East Bay than does the list-based analysis. Similarly, for AC Transit the Downtown Plan Draft EIR recognizes that current regional transit policy dictates no increases in AC Transit transbay service and thus, the ability of AC Transit to carry additional riders transbay will be restricted in the future. Use of this changing modal split is a refinement that allows the travel model to more accurately forecast travel demand and thus, the Downtown Plan Draft EIR results represent a more accurate level of projection than has been possible using methods and data available to date.

Various other factors cause differences in the travel demand projections between the two approaches. The Downtown Plan Draft EIR and the Consultant's Report on Downtown Growth Management Alternatives (Environmental Science Associates, 1983) contain extensive discussion of the analyses and data used

to forecast employment, land use (see sections cited above) and transportation demand (see Section IV.E and Appendix J of those reports).

TRANSIT

The transit agencies serving downtown San Francisco carry approximately 60% of the peak-period employee work travel, as well as about 20% of the peak-period other travel. P.M. peak-hour and peak-period loadings on the local and regional transit routes were found to be near capacity for some of the routes in 1984 (see Table 3). The values shown in Table 3 are sums over the peak hour and the two-hour peak period. Within the peak hour, there would be periods of time when the loading ratios would be higher than those shown for the hour (peak-of-the-peak conditions). Individual transit vehicle loadings vary on a day-to-day basis because of fluctuations in ridership (demand) and because of variations in operating conditions caused by traffic congestion, equipment availability, and/or system breakdowns. Photographic examples of p.m. peak-hour loadings on Muni vehicles are shown in Appendix C, Figure C-1.

The 1981/82 transit ridership and loading data used in the Downtown Plan Draft EIR analysis are summations of actual counts of individual transit lines for that period in time. Calculations are made on the basis of observed operating conditions, as opposed to scheduled operations. Muni supplied the data for the Downtown Plan Draft EIR analysis from its ongoing program of ridership checks. (The data supplied and collected for each transit agency are in the supporting documentation for the Downtown Plan Draft EIR, on file with the Office of Environmental Review, 450 McAllister St., Fifth Floor, San Francisco, CA.) Muni was involved in the process of verifying the transportation analysis for the Downtown Plan Draft EIR and as a result of that process, approved of the use of Muni data and the projections derived from that data.

The Level of Service concept, similar to that developed for highway operations, has been applied to both bus and rail transit. Passengers per seat (i.e., total passengers divided by the number of seats) has been used as the measure of effectiveness to define the various level of service ranges. Table C-1, Appendix C, shows the relationship between Level of Service and passengers-per-seat (P/S) ratios for bus transit systems.

TABLE 3: OUTBOUND REGIONAL TRANSIT DEMAND AND LEVEL OF SERVICE

Transit Agency	1984 Riders	1984 P/S/a/	1984 LOS/b/	2000 Demand	2000 P/S	2000 LOS	2000 Project Percent/c/	1984 + CUMULATIVE LIST Rounded Demand	1984 + CUMULATIVE LIST P/S	1984 + CUMULATIVE LIST LOS	1984 + CUMULATIVE LIST Project Percent/c/
P.M. Peak Hour											
Muni											
Northeast	7,100	1.16	D	8,800	1.05	D	0.1	8,700	1.04	D	0.1
Northwest	8,200	1.26	E	10,100	1.25	D	0.4	12,900	1.59	F	0.3
Southwest	13,500	1.45	E	16,600	1.42	E	0.2	17,500	1.50	E	0.2
Southeast	5,300	1.06	D	7,400	1.01	D	0.1	6,400	0.88	C	0.1
BART											
Transbay	16,100	1.53	F	27,900	1.42	E	0.2	21,900	1.12	D	0.3
Westbay	7,700	1.10	D	10,100	1.06	D	0.2	10,200	1.07	D	0.2
AC Transit	9,100	0.94	C	10,500	1.08	D	0.2	11,300	1.16	D	0.2
GGT Bus	5,300	1.00	C	8,500	0.91	C	0.2	6,800	0.73	B	0.3
GGT Ferry	800	0.57	B	1,500	0.38	A	0.2	1,100	0.28	A	0.1
Tiburon Ferry	200	0.40	A	300	0.60	B	0.2	200	0.40	A	0.1
SamTrans	1,900	1.12	D	3,100	1.19	D	0.2	2,300	0.88	C	0.3
CalTrain (SPRR)	3,100	0.61	B	4,900	0.79	C	0.2	3,800	0.61	B	0.3
P.M. Peak Period											
Muni											
Northeast	12,600	1.06	D	15,500	0.95	C	0.2	15,200	0.93	C	0.2
Northwest	13,100	1.13	D	15,300	1.05	D	0.4	20,600	1.41	E	0.3
Southwest	23,300	1.31	E	28,700	1.29	E	0.2	29,800	1.34	E	0.2
Southeast	9,100	1.00	C	12,100	0.88	C	0.1	11,000	0.80	C	0.1
BART											
Transbay	25,800	1.54	F	44,100	1.40	E	0.2	35,200	1.12	D	0.3
Westbay	11,300	0.80	C	14,600	0.77	C	0.2	15,400	0.81	C	0.2
AC Transit	14,000	0.95	C	17,000	1.16	D	0.2	17,500	1.19	D	0.2
GGT Bus	7,600	0.90	C	12,200	0.81	C	0.2	10,000	0.67	B	0.3
GGT Ferry	1,000	0.56	B	1,700	0.33	A	0.2	1,500	0.29	A	0.3
Tiburon Ferry	300	0.60	B	500	1.00	C	0.2	400	0.80	C	0.3
SamTrans	2,900	1.12	D	4,500	1.15	D	0.2	3,600	0.92	C	0.2
CalTrain (SPRR)	4,500	0.68	B	6,200	0.77	C	0.2	5,500	0.68	B	0.3

/a/ Passengers per Seat is the ratio of total demand to seated capacity.
/b/ Level Of Service is scale ranging from A to F that relates P/S ratios to passenger loading conditions on transit vehicles (see Table C-1, Appendix C).
/c/ The percent of demand generated by the project.

SOURCE: Environmental Science Associates, Inc.

During the p.m. peak hour in 1984, all of the transit agencies were found to be operating in Level of Service D or better, with the exception of BART Transbay where conditions were found to be at Level of Service F, and Muni in the Northwest and Southwest corridors, where operations were found to be in Level of Service E. Although BART is a rail transit service, its cars have a unique seating configuration. The ratio of total capacity to seated capacity for a BART car (about 1.5) is equivalent to the ratio for bus transit; thus the bus transit Level of Service scale is applicable to BART. Level of Service F ("crush" or "jammed" loadings) on BART is in the range of 1.5 to 1.8 passengers per seat. Because BART operates on a centrally controlled system, the "crush" loadings would not increase passenger loading times (which causes deterioration of service) as would be the case on a bus transit system; rather, the effects of "crush" loadings on BART would be reflected in increased passenger discomfort.

The rail transit Level of Service scale is based on typical light rail transit systems for which total capacity is about 2.0 to 2.2 times seated capacity. The rail transit Level of Service scale would be applicable to Muni Metro, which provides about 50% of the seated capacity to the Southwest corridor. Because Metro vehicles can accommodate higher loadings (a ratio of 2.0 passengers per seat) than buses or trolleys (a 1.5 ratio), the Level of Service would be somewhat better than shown in Table 3. An exact estimate of Metro loadings is not possible without analysis of the Metro service separate from the remainder of Muni service to the Southwest; such analysis would be beyond the ability of the travel demand analysis to predict accurately over time, as discussed in the following paragraphs.

With regard to the Muni data presented in Table 3, the Muni routes have been aggregated on a corridor basis and thus include two-directional travel on some routes that serve the Northeast and Southeast corridors. The Muni numbers cannot be added over the corridors to get a total for the system. Neither can capacity be shifted from one corridor to another. For instance, capacity in the Northeast corridor depends, in large part, on capacity that serves the Southeast portion of the City. The 15, 19, 25, 30, 30X, 30AX, 30BX, 32, 41, 42, and 47 lines pass through the downtown in two directions. Service on the above lines is interdependent. Thus, increases or decreases in capacity on

one of the above lines directly affect service in the opposite direction. Service to the Northeast and Northwest corridors is also interconnected, as lines serving the Northwest must pass through the Northeast corridor, and thus serve both areas. Muni ridership and capacity have been apportioned between both areas.

Passengers-per-seat ratios are only one measure of adequacy of service. The constraints of operating on heavily used streets in and around the downtown cause transit-vehicle bunching, loss of running time and missed schedules, all of which reduce service, reliability, and ultimately, capacity. In some respects, this would not be evident from simple quantitative analysis. In addition to these inefficiencies inherent within the transportation system, there are other factors which would affect overall transit capacities. These include variability in daily and seasonal ridership for which an absolute capacity must be available, as well as transit riders who remain uncounted because their transit trips both start and end beyond the screenlines used in this analysis. Daily fluctuations in fleet availability also affect system capacity.

Further, policy considerations dictate minimum operating conditions on certain lines; minimum headways that have been established to maintain transit access to areas served by those lines are not warranted on the basis of ridership alone. When averaged together, the ridership data from these lines may slightly distort overall ridership conditions.

P.M. peak-period conditions on transit in 1984 were found to be equivalent to or better than peak-hour conditions. In some cases, where demand remains at peak-hour levels during the two-hour period, the passengers-per-seat ratios in the two-hour period are higher than in the one-hour period. This anomaly is the result of transit agencies' providing express (or additional) service during the peak hour, but not during the entire peak period. An example of this type of operation may be seen on BART, where three extra trains operate in transbay service in the peak hour but not in the rest of the peak period. Another factor involved is the distribution of demand (ridership) at uniformly high levels over the peak-period.

Both transit demand and capacity have been assumed to increase during the period 1984 to 2000. The discussions of transit capacity increases for the agencies are based on the Five-Year Plans and Capital Improvement Plans of the various transit agencies; they appear in Appendix J of the Downtown Plan Draft EIR, pp. J.25-J.26. This material, which is discussed below and summarized in Table 3, is incorporated by reference. The future capacities were developed by applying percentage increases, expected in the future, to observed existing capacity. Thus, to the extent that the existing conditions contain inherent capacity reduction for missed runs, the future capacity projections have taken into account the inability of the transit systems to provide 100% of scheduled capacity. As noted above, the Muni analysis calculates capacity on the basis of all runs leaving the C-3 District in the p.m. peak. For all of the transit analyses, only peak-direction vehicles are counted.

Future transit demand and loadings for the Downtown Plan in the year 2000 and for 1984-plus-the-Cumulative-List condition are shown in Table 3 for both the peak hour and the peak period. The total transit demand from the project would represent about 0.2% of the total travel demand on the transit carriers in the year 2000.

Peak-hour transit demand on Muni in the year 2000 would increase about 25% over 1984 levels in the Northeast, Northwest and Southwest corridors. Muni demand in the Southeast corridor would increase about 40% between 1984 and 2000. Peak-hour demand on the other agencies would increase between 30% and 70% during the period 1984 to 2000.

Peak-period increases in demand would be between 15% and 70% from 1984 to 2000. Overall peak-period transit travel would be expected to increase about 30% between 1984 and 2000. Peak-hour and peak-period passenger loadings would be worse than in 1984, although most systems would operate in acceptable conditions (Level of Service D or better). However, BART Transbay and Muni to the Southwest would be in Level of Service E during the peak hour and the peak period.

Although the data in Table 3 are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five

Alternatives in the Downtown Plan Draft EIR. As shown in Table 2, total transit demand under Alternative 1 would be about 12% higher than under the Downtown Plan while transit demand from Alternative 4 would be about 9% lower than the Plan. As noted previously, these differences would not be statistically significant. In terms of Level of Service, the Downtown Plan would be equivalent to the five Alternatives.

It is important to note that the Five-Year Plan improvements for the transit systems are designed both to provide for future demand increases, and to improve service levels from existing conditions. For new vehicles to expand system capacity rather than represent replacement on a one-to-one basis, operating revenues would similarly need to be increased. During the year 2000 peak hour, Muni service to the Southwest and BART service Transbay would exceed the desirable passengers per seat ratios of 1.25 and 1.30, respectively./8/ Although the transit demand in the two corridors in excess of the desirable loadings would be able to be accommodated under crowded conditions and thus would not be excess demand (that is, not beyond capacity), demand in excess of the desirable loadings would mean that additional transit service over that assumed to occur by 2000 would need to be provided to allow transit operations in the two corridors to meet the goals set by Muni and BART. To meet the goal of 1.25 passengers per seat in the peak hour, Muni would have to increase service by about 14% in the Southwest corridor over the amount of service assumed to occur in 2000. To meet the goal of 1.30 passengers per seat, BART would have to provide a transbay service increase of 14% over the amount of service assumed to occur by 2000.

If transit service were not increased beyond the amounts assumed to occur by the year 2000 in the Downtown Plan Draft EIR, transit operations (in terms of passenger comfort) would be slightly better than 1984 conditions. Peak-hour and peak-period passengers-per-seat ratios would be lower than 1984 ratios even though service (in some corridors) has been assumed to increase as much as 80% between 1984 and 2000.

If the Downtown Plan's Goals regarding increased transit use were achieved, and the proposals in the Plan regarding transit service improvements were to be fully developed and in place, the impacts on transit agencies would be less

than described above. If the Goals were achieved, transit agencies would experience greater levels of demand than under this analysis but overall passenger loadings would be lower (and within desirable levels) because of increased transit service availability that would come about if the proposals stated in the Plan are developed. Section VI., Mitigation, contains measures that would provide the additional transit service required to mitigate the above impacts.

Also shown in Table 3 is an independent analysis of the conditions that would result from adding the travel from the Cumulative List to the 1984 base data, as is specified in the Transportation Guidelines. As noted above, the estimates calculated by adding the travel from the Cumulative List to the 1984 base data are not specifically comparable to those from the Downtown Plan Draft EIR method. The project travel would represent about 0.3% of the total travel on transit in the 1984-plus-the-Cumulative-List condition. As noted above, the List-based analysis overestimates the component of travel from San Francisco, as is shown in Table 3 by higher P/S ratios for Muni in the Northwest and Southwest corridors and lower P/S ratios for BART transbay, SamTrans, and CalTrain than under the Downtown Plan Draft EIR method. Under the 1984-plus-the-Cumulative-List conditions, Muni would not meet its service goals in the Northwest and Southwest corridors; this would require additional service increases of 27% and 20%, respectively, to meet Muni's goal of 1.25 passengers per seat in the peak hour. The other transit agencies would meet their service goals under these conditions.

PEDESTRIAN MOVEMENTS

The primary pedestrian entrance to the project is on Montgomery St.; it provides access to the project lobby and elevators serving the upper-floor offices. Entrances to the ground floor retail space are located on Montgomery, Washington, and Merchant Sts. The lobby for the residential portion of the project has access via Washington St. The project at full occupancy would generate about 180 pedestrian pte during the noon 15-minute period, and about 130 pedestrian pte during the p.m. peak 15-minute period.

Operating conditions on sidewalks and crosswalks have been categorized into a Pedestrian Flow Regimen, which relates density of pedestrians in a specific time period (pedestrians per foot of clear sidewalk width per minute) to quality of pedestrian flow (the difficulty of maintaining walking paths and speeds on a sidewalk)./9/ Table C-2, Appendix C of this report, shows the relationships among flow rates, walking speed, path choice, and interactions between pedestrians for each flow regime. Figure C-2, Appendix C of this report, shows photographs of sidewalk conditions for each flow regime. Typically, an upper limit for desirable conditions is 14 pedestrians per foot per minute (p/f/m), defined as crowded; conditions as high as 18 p/f/m, a congested condition, are possible, with some conflicts among pedestrians./9/

Table 4 compares existing (1984) pedestrian flows with predicted pedestrian volumes on Montgomery St. at the intersection with Washington St. in the year 2000. Washington and Montgomery St. sidewalks currently operate in unimpeded conditions or better during both the noon peak 15-minute period and the 15-minute p.m. peak period.

Sidewalk operations in the year 2000 would be in the impeded range during the noon hour and in unimpeded conditions during the p.m. peak hour. The project pedestrian traffic would represent about 6% of the pedestrian volumes on the Washington St. sidewalk during the noon hour and about 13% during the p.m. peak hour. Pedestrian flows from the project would represent about 30% of the pedestrian volumes on the Montgomery St. sidewalk during the noon hour and about 24% during the p.m. peak hour.

Although the data in Table 4 are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five Alternatives in the Downtown Plan Draft EIR. Pedestrian travel demand, although not shown in Table 2, is closely related to total travel demand because the majority of trips on the primary modes shown in Table 2 begin or end as pedestrian trips at a building. Total travel demand for Alternative 1 would be about 17% higher than that under the Downtown Plan, while that under Alternative 4 would be about 5% lower than that under the Plan. The range among the Alternatives would not change the flow regimen shown in Table 4.

TABLE 4: PEAK PEDESTRIAN VOLUMES AND FLOW REGIMEN AT WASHINGTON AND MONTGOMERY STREETS

	1984		2000			1984 + CUMULATIVE LIST		
	p/f/m/a/	Flow Regimen/b/	p/f/m	Flow Regimen	Project Percent	p/f/m	Flow Regimen	Project Percent
				NOON PEAK/c/				
Washington St. Sidewalk/d/	1.6	Unimpeded	2.1	Impeded	6%	1.8	Unimpeded	6%
Montgomery St. Sidewalk	1.7	Unimpeded	2.3	Impeded	30%	2.0	Unimpeded	33%
				P.M. PEAK /c/				
Washington St. Sidewalk	0.4	Open	0.6	Unimpeded	13%	0.5	Open	15%
Montgomery St. Sidewalk	1.5	Unimpeded	2.0	Unimpeded	24%	1.7	Unimpeded	28%

/a/ Pedestrians per Foot of effective sidewalk width per Minute.
/b/ See Table C-2 and Figure C-2 for descriptions of pedestrian flow regimen.
/c/ Peak 15-minute periods.
/d/ All sidewalk segments are along project frontage.

SOURCE: Environmental Science Associates, Inc.

Also shown in Table 4 are the results of adding travel from the Cumulative List to the 1984 base data. Because the List has less overall space proposed than has been estimated to be available by the year 2000 under the Downtown Plan or the five Alternatives, the 1984 plus Cumulative List pedestrian volumes would be lower than those for the year 2000. Under the List-based analysis, conditions on the Washington St. and Montgomery St. sidewalks would remain in the unimpeded (or better) range during both the noon and p.m. peak periods. The project, in this condition, would represent about 6% of the noon peak and about 15% of the p.m. peak pedestrian travel on the Washington St. sidewalk. Project volumes on the Montgomery St. sidewalk would be about 33% of the noon volumes and about 28% of the p.m. peak volumes.

TRAFFIC

The analysis of traffic impacts has been conducted on two levels; one level of analysis considered impacts at the regional screenlines, the second level of analysis considered impacts at intersections in and near the downtown.

Regional Freeway Analysis

Analysis of traffic conditions at the regional screenlines has been conducted for both the p.m. peak hour and the two-hour p.m. peak period. A.m. peak traffic conditions at the regional screenlines have the effect of metering the amount of traffic that reaches the downtown from outside of the City. This analysis has therefore considered p.m. peak conditions. P.m. conditions are usually most severe on both freeways and streets within San Francisco, whereas a.m. peak conditions are most severe at locations outside of the City.

Traffic demands at the regional screenlines in 1984 (see Table 5) during the p.m. peak hour were found to use between 90% and 100% of the available capacity on the freeways and bridges. Although the eastbound capacity of the Bay Bridge is calculated to be 9,000 vehicles per hour (vph), the 1984 peak-hour volume shown in Table 5 represents the effective eastbound capacity. The volume figures shown in Table 5 for 1984 for the one-hour and

TABLE 5: OUTBOUND REGIONAL AUTO DEMAND

Regional Auto Corridor	1984 Capacity/a/	1984 Volume/b/	2000 Demand	2000 Project Percent	1984 + CUMULATIVE LIST Demand	1984 + CUMULATIVE LIST Project Percent
P.M. Peak Hour						
Bay Bridge (I-80)	9,000	8,540	9,790	0.1	9,480	0.1
Golden Gate Bridge (US-101)	7,200	6,740	7,150	0.1	7,100	0.1
US-101 (south of Harney Way)	8,000	7,390	8,400	0.1	7,800	0.1
I-280 (between Alemany Blvd. and San Jose Avenue)	8,000	7,610	8,650	0.1	8,020	0.1
P.M. Peak Period						
Bay Bridge (I-80)	18,000	17,880	19,330	0.1	18,460	0.1
Golden Gate Bridge (US-101)	14,400	13,870	14,850	0.1	15,380	0.1
US-101 (south of Harney Way)	16,000	14,200	16,530	0.1	14,870	0.1
I-280 (between Alemany Blvd. and San Jose Avenue)	16,000	13,620	15,890	0.1	17,290	0.1

/a/ Although the capacity of the Bay Bridge is calculated to be 9,000 vehicles per hour (vph), the 1984 peak-hour demand shown above represents the effective capacity.
/b/ The volumes for 1984 for the one-hour and two-hour periods are averages of several days and, thus, values for individual days may be different than the average.

SOURCE: Environmental Science Associates, Inc.

two-hour periods are averages of several days; thus, values for individual days may be different from the average.

Peak-hour freeway operating conditions in 1984 were found to be generally in Level of Service D to E conditions, which would indicate unstable flows in the 35 mph to 45 mph range. Table C-4, Appendix C, shows the Level of Service for freeway operations. Peak-of-the-peak conditions within the peak hour were found to be worse than the hourly conditions because of surges in traffic demand during the peak hour. Conditions during the peak-period at the screenlines were found to be similar to those experienced during the peak-hour.

As shown in Table 5, demand during the peak hour in the East Bay and Peninsula corridors would be expected to increase about 15% between 1984 and 2000. Peak-hour demand in the North Bay corridor would increase by about six percent between 1984 and 2000. The project travel demand, about 80 p.m. peak-hour and 130 p.m. peak-period outbound vehicle trip-ends, would represent about 0.1% of the total demand in each corridor in the year 2000. Both the East Bay and Peninsula corridors would have excess peak-hour demand that would not be met during the peak period./10/ The North Bay corridor would have excess demand in the peak period. Excess auto demand would result in either a spreading of the demand into the hours adjacent to the peak period or in increased transit and ridesharing use should additional transit service (beyond that assumed to occur by the year 2000) or ridesharing incentives be provided.

Operating conditions at the regional screenlines would be at or near capacity in Level of Service E. Traffic flow conditions would be expected to be very unstable and could experience temporary flow interruptions throughout the peak-period. Peak-of-the-peak conditions would be prevalent during the peak hour and might extend into the peak period. The overall two-hour commute period would not be expected to increase substantially in the future. Rather, the occurrence of peak-of-the-peak conditions, now less than one hour, would most likely expand to fill the one-hour peak.

As shown in Table 5, the list-based cumulative analysis, while not comparable to the year 2000 data, produces similar estimates of future demand. The results reflect the tendency of the list-based method to overestimate regional

auto travel. The project would represent about 0.1% of the regional auto demand in this condition. The Bay Bridge and I-280 would have excess demand during the peak hour; the Bay Bridge, the Golden Gate Bridge, and I-280 would have excess demand during the peak period. The same conclusions noted above regarding future operating conditions would apply to this condition as well.

Intersection Analysis

The streets that serve the project as feeders to or from freeway ramps are points of maximum automobile traffic congestion in the Financial and Downtown Districts. Conditions on these streets were assumed to represent the "worst case" or greatest traffic impacts of the project.

Impacts from the project on other streets would be less, because project traffic on them would be more dispersed. Routes of drivers going to garages were assumed to be sufficiently dispersed so that they would have no measurable effect on traffic volumes on the streets adjacent to the project. Project impacts at the intersections closest to the project site would result primarily from service-vehicle and pedestrian traffic and from traffic using the proposed 62 on-site parking spaces, 40 of which would be reserved for residents of the project. However, as the project has eliminated a 45-space surface lot and because of the minimal auto use by project residents, traffic to the project site during the day would be expected to decrease in the future. The traffic volumes from the project would not be detectable against the background of future traffic growth from development in the downtown at the intersections adjacent to the project.

Traffic operations at intersections near freeway ramps serving the project site vicinity are shown in Table 6. The intersection of Battery and Clay Streets has Level of Service C conditions during the p.m. peak hour, while the intersections of Mission and Beale Sts. and First and Harrison Sts. are at Level of Service E and F, respectively. Level of Service descriptions are shown in Table C-3, Appendix C.

Peak-hour conditions would be expected to deteriorate at all of the intersections by the year 2000. Expanded areas of traffic congestion would disrupt surface Muni operations. If the mitigation measures for transportation are implemented, the intersection operating conditions would be improved.

As shown in Table 6, the list-based analysis yields worse Level of Service intersection conditions than those for the year 2000. While similar to the results of the Downtown Plan Draft EIR results, the list-based results are not comparable for the reasons stated above, particularly because the list-based analysis overestimates auto use through the assumption of an unchanging modal split.

Although the traffic data shown in Table 5 and used to calculate the v/c ratios in Table 6 are calculated on the basis of projections for the Downtown Plan, similar traffic data would be expected under the five Alternatives in the Downtown Plan Draft EIR. As shown in Table 2, regional traffic demand under Alternative 1 would be about 34% higher than under the Downtown Plan while regional traffic demand from Alternative 4 would be about 13% lower than under the Plan. In terms of Level of Service, the Alternatives would be equivalent to the Downtown Plan.

TABLE 6: PROJECTED PEAK-HOUR INTERSECTION VOLUME-TO-CAPACITY RATIOS (V/C) AND LEVELS OF SERVICE (LOS)/a/

Intersection	1984 V/C	1984 LOS	2000 V/C	2000 LOS	1984 + CUMULATIVE LIST V/C	1984 + CUMULATIVE LIST LOS
Battery & Clay Sts.	0.74	C	0.81	D	0.83	D
Mission & Beale Sts.	0.92	E	1.05	F	1.10	F
First & Harrison Sts.	1.11	F	1.34	F	1.35	F

/a/ Level of Service descriptions and relationship to V/C ratios are shown in Table C-3, Appendix C of this report.

SOURCE: Environmental Science Associates, Inc.

PARKING

The estimated parking demand (both long-term and short-term) from the C-3 District in 1984 was found to be about 45,300 spaces, which would occupy about 94% of the 48,000 parking spaces in and near the C-3 District./11/ The short-term parking demand, while representing about 25% of the equivalent daily demand, is about 65% of the daily vehicle travel. Although the equivalent daily demand would leave about 10% of the parking supply vacant, surges in short-term demand (more travel in one period than in another period) can cause temporary localized overloads of parking facilities within various portions of the downtown, even though parking may be available elsewhere in the downtown.

The project provides 62 on-site parking spaces and has removed 45 existing spaces. At full occupancy, the project would create a long-term parking demand of 190 spaces and demand for 10 short-term spaces, for a total demand of about 200 equivalent daily spaces. There would be an on-site deficit of about 140 spaces.

The C-3 District would generate demand for approximately 58,000 equivalent daily parking spaces in the year 2000 under the Downtown Plan, an increase of 28% from 1984. Short-term demand would continue to represent about 25% of the total demand. The project parking demand would represent about 0.3% of the total demand from the C-3 District. The parking supply has been assumed to be about 51,000 spaces. There would be a parking deficit of about 7,000 spaces in the year 2000 if vehicular demand occurs as projected. However, as shown in Table 5, the analysis for the year 2000 forecasts excess auto demand in the peak hour and the peak period. If the excess demand is accommodated on transit or ridesharing, then the overall parking demand would decrease from the above estimate by about 2,300 spaces. If the Goals of the Downtown Plan are met, total parking demand in the year 2000 would be about 48,100 equivalent daily spaces, an increase of six percent over 1984. If the Goals were achieved, there would not be a parking deficit.

The list-based analysis shows future demand for 11,400 spaces from projects in the C-3 District, which, when added to the 1984 data, would be a total demand

of 56,700 spaces. The project parking demand would represent about 0.4% of the total demand. While similar to the 58,000 space (unmitigated) demand for the year 2000, the list-based demand is not comparable for the reasons stated above, in particular because the list-based analysis assumes a static modal split and thus overestimates future auto demand.

Although the parking demands discussed above are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five Alternatives in the Downtown Plan Draft EIR. Although not shown in Table 2, parking demand from the C-3 District under Alternative 1 would be about 4% higher than under the Downtown Plan, while that under Alternative 4 would be about 1% lower than that under the Plan.

NOTES - Transportation

/1/ San Francisco Department of City Planning, Transportation Guidelines for Environmental Impact Review: Transportation Impacts, September 1983. This document describes the procedure used to calculate travel demand from the project. Trip generation rates of 18.1 person trip-ends (pte) per 1,000 gross sq. ft. (gsf) of office space, 150 pte per 1,000 gsf of retail space, and 7.5 pte per dwelling unit were used to generate travel from the project. The trip generation rates are for independent land uses. When used to generate travel from more than one land use on the same site the rates may overestimate total travel to the site since a portion of the travel from each of the land uses may occur between land uses on the site and not leave the site. Such trips are referred to as "linked trips." On the basis of the data contained in the March 10, 1984 Cumulative List, the trip generation calculation for the project is as follows: 233,300 gsf office X 0.0181 pte/gsf - 1,200 gsf retail X 0.15 pte/gsf + 40 dwelling units X 7.5 pte/dwelling unit = 4,340 pte per day. The September 1983 Transportation Guidelines are on file and available for public review at the Office of Environmental Review, 450 McAllister Street, Fifth Floor.

/2/ The percentage of travel occurring in the peak period and the peak hour are from the Transportation Guidelines (see Note /1/). Total travel during each of the periods has been adjusted to show only outbound (leaving the downtown area) travel. The outbound travel consists of all of the work-related travel and half of the other (non-work) travel from the office and retail portions of the project; only 20% of the residential travel has been assumed to be outbound during the evening peak because the majority of travel from the residential space would be from residents returning to the project site (i.e., inbound travel).

/3/ San Francisco Department of City Planning, Office of Environmental Review, Draft Environmental Impact Report for The Downtown Plan, EE81.3, March 16, 1984. This document is an analysis of projected growth in the C-3 District to the year 2000 under the Downtown Plan and five alternatives. The transportation analysis in the Downtown Plan Draft EIR includes projections of future modal splits for work and other (non-work) travel for

the p.m. peak period, p.m. peak hour, and daily time periods. That document is on file with and available for public review at the Department of City Planning, 450 McAllister Street, Fifth Floor.

/4/ The Downtown Plan Draft EIR contains about 50 pages of text devoted to the description of transportation impacts in the greater downtown area, as well as an additional 30 pages of text describing transportation mitigation measures. The information in this Supplemental EIR is not intended to be a comprehensive summary of the transportation analysis in the Downtown Plan Draft EIR, but rather summarizes portions relevant to the project and its contribution to cumulative impacts. For details and assumptions used to arrive at the data and results presented in the Downtown Plan Draft EIR, see Section IV.E, Transportation Setting and Impact, Section V.E, Transportation Mitigation, and Appendix J, Transportation and Circulation Analyses and Methodologies, of the Downtown Plan Draft EIR, which are incorporated by reference into this report and summarized in the text as appropriate.

/5/ Data are from Traffic Survey Series A-48 and MA-60, Spring 1977 and Spring 1983, Metropolitan Transportation Commission.

/6/ The analysis of historic trends in travel patterns is from the following sources: Metropolitan Transportation Commission, Travel Observations of the Bay Bridge Corridor, October 21, 1981. Homburger and Dock, Trends in Traffic Patterns at the Bay Bridge and Caldecott Tunnel, U.S. Department of Transportation, DOT-BIP-WP-32-3-77, July 1977; telephone survey of 500 drivers conducted in April 1980 by Golden Gate Transit, data supplied by Alan Zahradnik, Transportation Planner, on February 16, 1983; Office of the Auditor-Controller, Comparative Record of Traffic for the Month of November, May 27, 1937 through November 30, 1982, Golden Gate Bridge, Highway and Transportation District; San Francisco Municipal Railway Planning Division, Projections of Future Muni Demand and Vehicle Requirements, October 1982; San Mateo County Transit District, SamTrans Five-Year Transportation Development Plan: 1983-1988, April 1983; California Department of Transportation, CalTrain Caltrans/Southern Pacific Peninsula Train Service Five-Year Plan 1983-1988, July 1983; and traffic volume counts from San Francisco Department of Public Works, Bureau of Engineering, Division of Traffic Engineering and from 1983 San Francisco Cordon Count, JHK and Associates, July 1983.

/7/ See Downtown Plan Draft EIR, pp. II.9-II.11, for a comparison of the cumulative list projections with those of the Downtown Plan Draft EIR.

/8/ San Francisco Municipal Railway, Short-Range Transit Plan 1983-1988, July 1983. Bay Area Rapid Transit District, Short Range Transit Plan for the Five-Year Period July 1983 Through June 1988, August 1983.

/9/ Pushkarev and Zupan, Urban Space for Pedestrians, MIT Press, 1975, p. 85-117.

/10/ Table IV.E.4, p. IV.E.36, of the Downtown Plan Draft EIR contains a discussion of the implications of excess demand at the regional screenlines.

/11/ The parking survey data and other supporting calculations and data used in the Downtown Plan Draft EIR transportation impact analysis are on file and available for public review at the Office of Environmental Review, Department of City Planning, 450 McAllister Street, Fifth Floor.

(The following material replaces the Air Quality information in the FEIR on pp.96-98.)

C. AIR QUALITY

Upon completion, the project would affect air quality in two ways: emissions would be generated by project-related traffic and by combustion of natural gas for space and water heating. Transportation sources would account for over 95% of project-related emissions. Projected daily emissions of pollutants in 1990 from project-generated traffic, and from cumulative development traffic, based on the March 10, 1984 list of Cumulative Office Development in Downtown San Francisco, are shown in Table 7. These emissions are also compared in the table to emissions projected for C-3 District development by the Downtown Plan Draft EIR, and to total emissions projected for the entire Bay Area by the 1982 Bay Area Air Quality Plan. The project would contribute about 0.6% to the total amount of air pollution generated by cumulative list projects.

TABLE 7: PROJECTED DAILY POLLUTANT EMISSIONS

	Emissions (tons per day) /a/					
			Downtown Plan/c/		Bay Area/d/	
Pollutant	Project 1990	Cumulative List 1990/b/	1990	2000	1990	2000
Carbon Monoxide	.100	17.0	6.8	6.6	1,952	1,883
Hydrocarbons	.008	1.4	0.6	0.6	428	428
Nitrogen Oxides	.010	1.8	0.8	0.8	558	610
Sulfur Oxides	.001	0.2	0.1	0.1	194	233
Particulates	.015	2.7	1.1	1.3	562	649

/a/ Project, Cumulative List, and Downtown Plan emissions calculated using BAAQMD, EMFAC6C vehicular emission factors. Emissions of CO, HC, and NOx include an assumed six minutes of idling time per vehicle trip. Emissions of TSP include dust entrained from roadway surfaces.

/b/ Incremental emissions of downtown-area development based on list of projected Cumulative Office Development in Downtown San Francisco as of March 10, 1984 (see Appendix B, Table B-2 of this report).

/c/ Incremental emissions of C-3 District development, per Downtown Plan Draft EIR, Table IV.I.2, p. IV.I.12.

/d/ Accumulative total emissions of Bay Area development, per ABAG, BAAQMD, MTC, 1982 Bay Area Air Quality Plan, pp. 42, 53, and 112.

Source: Environmental Science Associates, Inc. and EIP Corporation.

Motor vehicle trips associated with downtown development would emit more nitrogen oxides (NOx) than hydrocarbons (HC), both of which are chemical precursors of ozone, while emissions from building natural gas combustion would consist primarily of NOx. On the basis of the LIRAQ ozone simulations conducted for the 1982 Bay Area Air Quality Plan, NOx emissions in excess of HC emissions could lead to a slight decrease in peak ozone concentrations in the Bay Area. This relationship between NOx and HC emissions would hold both under the cumulative list scenario and the Downtown Plan scenario shown in the table. Thus, emissions of HC and NOx generated by the project and by cumulative development would not increase the Bay Area ozone concentrations which would otherwise occur.

It is possible, however, that excess NOx emissions could increase ozone and/or nitrogenous oxidant concentrations further downwind, outside the Bay Area. In addition, incremental NOx emissions generated by the project and by cumulative development could lead to violations of the NO_2 standard with concomitant health effects; could reduce visibility; or (to a relatively small extent due to the small magnitude of the increase and to dilution over time and distance) could increase acid rain further downwind, outside the Bay Area.

CO concentrations are predicted to be less in 1990 and subsequent years than shown for 1984. In 1990 traffic volumes in the downtown area would increase by about 8%, area-wide, over 1984 volumes. However, in 1990 the average vehicle is expected to emit 32% less CO than in 1984 due to ongoing state and federal emissions controls. The projected effects of state and federal emission controls on new vehicles (and the retirement of older, polluting vehicles) would more than offset the increases in traffic volumes and traffic congestion.

Curbside CO concentrations at selected intersections affected by project-generated traffic, and by cumulative development traffic (based on the March 10, 1984 cumulative list), were projected for worst-case conditions (poor dispersion meteorology), and are compared with the ambient standards in Table 8. These concentrations are also compared in the table to concentrations projected for C-3 District development by the Downtown Plan Draft EIR. The results indicate that the state and federal 8 hour average CO standards, set at 9 ppm, are

currently violated at Mission/Beale and Clay/Battery. No excesses of the applicable CO standards are projected for any of the three locations analyzed for 1990 or 2000. The proposed project would contribute less than 1% to the overall CO concentrations at these intersections.

TABLE 8: PROJECTED WORST-CASE CURBSIDE CARBON MONOXIDE CONCENTRATIONS

		Concentrations (pm)[1]			
				Downtown[3] Plan	
Intersection	Averaging Time	1984	Cumulative List 1990[2]	1990	2000
Mission/Beale	1-hour	13.6	10.3	10.0	8.8
	8-hour	9.5	7.0	6.8	6.5
Clay/Battery	1-hour	13.2	9.9	9.8	8.5
	8-hour	9.6	7.0	6.9	6.5
First/Harrison	1-hour	11.5	8.7	8.2	7.7
	8-hour	8.2	6.0	6.1	5.8

/1/ Calculations for all four scenarios were made for worst-case (poor dispersion) meteorology, using the modified linear rollback method. Background concentrations were calculated to be 7.3 ppm for one hour and 5.6 ppm for eight hours in 1984, 5.4 ppm for one hour and 4.1 ppm for eight hours in 1990 and 4.8 ppm for one hour and 3.7 ppm for eight hours in 2000. No excesses of ambient standards are projected to occur in 1990 or 2000. The one-hour state standard is 20 ppm, the one-hour federal standard is 35 ppm, and the eight-hour state and federal standard is 9 ppm.

/2/ Based on list of projected Cumulative Office Development in Downtown San Francisco as of March 10, 1984.

/3/ Based on growth projection methodology contained in Downtown Plan Draft EIR, Table IV.I.3, page IV.I.16.

Source: EIP Corporation and Environmental Science Associates, Inc.

Emissions of TSP generated by the project and by cumulative development would increase TSP concentrations, which could increase the frequency of TSP standard violations in San Francisco, with concomitant health effects and reduced visibility.

Emissions of SOx generated by the project and by cumulative development would probably not bring San Francisco's SO_2 concentrations significantly closer to violating the standard.

The project, and other downtown development on the cumulative list or under the Downtown Plan, would not directly conflict with the pollution reduction strategies recommended by the 1982 Bay Area Air Quality Plan. These strategies consist primarily of HC and CO emission controls on stationary sources and motor vehicles, and transportation improvements, and are aimed at attaining the federal ozone and CO standards. In addition, emissions associated with the project and with other downtown development are not projected by this EIR or by the Downtown Plan Draft EIR to increase ozone concentrations or to result in violations of CO standards, and thus would not indirectly conflict with the objectives of the 1982 Bay Area Air Quality Plan.

Alternative 1 to the Downtown Plan (covered in the Downtown Plan Draft EIR) would generate about 38% more emissions in 2000 (from development between 1990 and 2000) than would the Downtown Plan. Alternative 4 would generate about 7% less emissions than would the Downtown Plan. Emissions generated by Alternatives 2, 3, and 5 would fall within this range. The types of air quality impacts under these alternatives would be the same as those under the Downtown Plan; their magnitudes would vary in proportion to their differences in emissions.

The pollutant emissions and CO concentrations shown in Tables 7 and 8 were projected for 1990 on the basis of two different sets of future growth assumptions, with differing results. In one case, a list of specific projects proposed, approved, and under construction was used (the list of Cumulative Office Development in Downtown San Francisco, March 10, 1984). In the other case, the employment growth trend approach of the Downtown Plan EIR was used,

and those projections presented. In both cases, the method for the air quality analyses was identical. However, the results using projected cumulative development are not directly comparable with those from the Downtown Plan DEIR for several reasons:

First, it is reasonable to assume that the projected cumulative development on the list would be completed and occupied sometime between 1990 and 2000, rather than in either of those two analysis years which were used in the Downtown Plan Draft EIR. The pollutant emissions and CO concentrations were calculated for 1990 using the cumulative list, even though those projects are not expected to be completed until the mid-1990's, in order to provide the possibility of some comparison with the Downtown Plan Draft EIR results. However, this has the effect of artificially increasing the cumulative list results, because average-vehicle emission rates will decline with time, as a result of federal and state controls.

Second, the transportation analysis used for the Downtown Plan Draft EIR differs from that used for the cumulative list, as described in the previous Transportation section of this report. Briefly, these differences include the fact that a cumulative list-based analysis assumes that the same proportion of new employees would commute by private auto as is currrently the case. In contrast, the Downtown Plan Draft EIR analysis projects a shift of commuters from driving alone to carpool and transit, because commute routes such as the Bay Bridge are already at or near capacity and could not accommodate all of the vehicles that would be used if the proportion of persons driving alone to work remained constant.

Other reasons for the differences include the use in the cumulative list analysis of a constant regional distribution of trips, whereas the Downtown Plan Draft EIR forecasts a declining percentage of new employees residing in San Francisco, and the lack in the cumulative list approach of discounting factors to account for trips between individual projects within the Downtown.

Thus, total (regional) vehicle-miles-travelled and the resulting pollutant emissions projected using the cumulative list approach are considered

artificially high. On a local intersection basis, traffic volumes and the resulting CO concentrations might or might not be higher with the cumulative list approach, depending on the particular location. This is because the cumulative list method does not distribute traffic on all the same streets in the same proportions as does the Downtown Plan Draft EIR method.

D. ENERGY

The Department of City Planning predicts future electricity consumption, based on the electricity use of 18 recently constructed buildings in the downtown area, to be about 18 kWh per square foot per year./1/ This number includes an estimate of the base power consumption of the building core, such as air circulation, cooling, mechanical and lighting loads, as well as electricity demands due to increased use of electronic office machines including copiers, computers and word processors, which are generally in operation the entire work day. Yearly estimated electrical consumption for the projected 19 million square feet of additional office space in downtown San Francisco would be approximately 340 million kWh of energy per year,using the list of Cumulative Office Development (March 10, 1984, see Appendix B, Table B-2, of this report). Energy used by the project would contribute about 1.5% of the total energy which would be used by cumulative development.

Pacific Gas and Electric Company, in examining its ten-year load growth projections for San Francisco, believes that growth rates of net new office space in the downtown area will diminish in the next decade from the historic figure of 1.5 million square feet per year to between 1 million and 1.2 million square feet per year./2/ The utility company's current analysis of a typical office building yielded an annual consumption of about 17 kWh per square foot. This agrees with the City's estimate (noted above), within the limits of estimation methodology. Using these figures, total increased energy demand for the next decade would be approximately 200 million kWh of electricity per year, less than projected using the cumulative list. The lower PG&E prediction is largely due to its lower estimation of future development.

Projections of energy use discussed in the Downtown Plan DEIR indicate an increase of about 210 million kWh of annual electricity consumption between 1984 and 1990 as a result of all new development occurring in the C-3 District. Between 1990 and 2000, annual electrical consumption rates would increase by 330 to 350 million kWh above present figures, or 120 million to 140 million kWh above the increases estimated for the 1984-1990 period./3/ Both estimates are for growth that would occur under the Downtown Plan scenario./4/ Electricity

requirements for development that would occur with the Alternatives proposed in the Downtown Plan DEIR predict an increased annual demand of between 300 million kWh and 500 million kWh between 1984 and 2000./5/

Estimates referred to in the Downtown Plan DEIR are not directly comparable to those estimates made by applying a kWh per square foot per year generation factor to the square footage of projected cumulative development (list method) for two reasons. First, the energy projections made using the list method estimate energy demand at the time of full buildout (mid 1990's) rather than during the 1984-1990 and 1990-2000 time periods as in the Downtown Plan DEIR. Second, about 75% of the projects on the March 10, 1984 list of projected cumulative development in downtown San Francisco fall within the C-3 District boundary, which means the list method estimates energy consumption for a larger area than the Downtown Plan DEIR. The PG&E projection cannot be compared to the projections in the Downtown Plan DEIR because they cover different time periods.

Natural gas consumption for new office development would be less than current demands, which include consumption in older, less-energy-efficient buildings. The Department of City Planning estimates that natural gas use by new buildings in the year 2000 would be 11 cubic feet per square foot per year./6/ The Department further estimates that, between 1984 and 2000, annual gas consumption will grow by about 470 million cubic feet of which about 210 million cubic feet would be for office uses.

A comparison of the Downtown Plan and PG&E estimates for projected energy demands in downtown San Francisco for the last decade of the century is currently being prepared by PG&E in a report to be released later this year. PG&E plans to meet increased San Francisco energy demands to the year 2000 are discussed on pages IV-G.13-14 of the Downtown Plan DEIR, which are hereby incorporated by reference. In summary, that material indicates the demand increases in electricity would be met from nuclear sources, oil and gas facilities, hydroelectric and geothermal facilities, and other sources such as cogeneration, wind and imports. PG&E plans to continue receiving most of its natural gas from Canada and Texas under long-term contracts.

NOTES - Energy

/1/ Unpublished building energy consumption data supplied by David Rubin, Department of City Planning, January 1984.

This information became available in early 1984 and therefore was not available for use in earlier EIRs.

/2/ Ken Austin, Commercial-Industrial Marketing Supervisor, Pacific Gas and Electric Company, letter of March 23, 1984. Available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister St., 5th Floor, San Francisco.

/3/ The Downtown Plan EIR uses a consumption rate factor of 18 kWh/square foot/year between 1984 and 1990 and 16 kWh/square foot/year from 1990 to 2000. These different factors are due to Title 24 revisions to reduce building energy budgets. These new standards would be reflected by lower electrical consumption in buildings constructed by 1990.

/4/ Downtown Plan DEIR, pp. IV.G.1 - IV.G.17.

/5/ Ibid., pp. VII.G.1 - VII.G.4.

/6/ David Rubin, op. cit.

E. RESIDENCE PATTERNS AND HOUSING

Future Residence Patterns for San Francisco

Employment growth and building development in downtown San Francisco will result in more employees working and living in the City. Over time, more existing residents will take San Francisco jobs and others who take San Francisco jobs will move into the City.

Downtown Plan Forecast As Cumulative Context

Forecasts of residence patterns in the year 2000 were prepared for the Downtown Plan Draft EIR./1/ These forecasts incorporate future housing, labor force, and employment patterns in San Francisco and throughout the region and consider changing demographic, housing market, and transportation factors.

According to the Downtown Plan forecasts, approximately 189,000 C-3 District workers would be living in San Francisco in 2000. This represents an increase of 30,000 residents employed in the C-3 District over the 159,000 estimated for 1984, a 19 percent increase./2/ Relatively more employed San Franciscans would be employed in the C-3 District. The percentage (employed San Franciscans holding C-3 District jobs) would increase from 45.0 percent in 1984 to 47.5 percent in 2000. Relatively fewer C-3 District jobs would be held by San Franciscans. The percentage (C-3 District jobs held by San Franciscans) would decline from 55.5 percent in 1984 to 50.2 percent in 2000. These changes would be the result of cumulative development and employment growth in the C-3 District between 1984 and 2000.

It is important to understand the difference between the two percentages above. In each case, the same estimate of the number of jobs held by San Francisco residents is compared to an estimate for a larger group: to all employed residents of the City in the first instance and to all C-3 District employment in the second. The percentages are different since the number of employed residents is different from the number of jobs. These percentages both describe the same employment situation, but from different perspectives.

The Downtown Plan forecasts fall within the range of estimates of C-3 District workers living in San Francisco that was identified by the analysis of Alternatives in the Downtown Plan DEIR. By 2000, the Alternative forecasts range from 189,000 to 193,000 C-3 District workers living in San Francisco. The relative comparisons described above apply to all the Alternatives; the percentage of total employed San Franciscans working in C-3 District jobs in 2000 would be higher than in 1984, while the percentage of C-3 District jobs held by residents would be lower.

The residence patterns of future occupants of the Montgomery/Washington project can be estimated using information developed in the Downtown Plan analysis. This approach assumes that employment densities for the building and residence patterns for those working in the building would reflect the average conditions for all similar buildings and occupants in the C-3 District in 2000. According to this approach there would be about 380 people employed in the project who would live in San Francisco. The project would account for about 0.2 percent of all San Franciscans employed in the C-3 District in 2000 under the Downtown Plan forecast./3/

Estimates Based On The List Of Office Projects In Downtown San Francisco

An alternative means of evaluating the cumulative effects of projects such as the proposed Montgomery/Washington project is to use the list of all projects that are under construction, approved, or under formal review. (This list is discussed in Appendix B, of this report. The list includes projects throughout the greater downtown, which includes the C-3 District as well as adjacent areas.) It is possible to calculate from the list the change in the number of downtown workers living in San Francisco associated with this amount of development. Adding this number to the 1984 base estimate of downtown workers residing in San Francisco produces an estimate of total downtown workers living in the City, once all projects on the list were built and occupied. The results from this approach indicate that about 230,000 workers in the greater downtown area would live in San Francisco at that time./4/

This approach uses data from the 1983 Transportation Guidelines to estimate the residence patterns of future employees in the buildings on the list. Unlike the Downtown Plan forecast approach, this approach incorporates no changes over time in either employment densities or residence patterns. It assumes that current average conditions (reflected in the Transportation Guidelines) would continue throughout the build-out period for the list.

The project would account for about 0.17 percent of all downtown workers living in San Francisco when all projects on the list were built and occupied. The project would represent a smaller share of future activity in the greater downtown area than of activity in the C-3 District alone.

Differences In Cumulative Approaches

There are several important differences between the two approaches to cumulative analysis: the Downtown Plan approach of forecasting space and employment and the approach of using a list of proposed projects. (A detailed comparison of the two approaches is presented in Section V.A, Introduction to Cumulative Impact Analysis.) The first approach incorporates forecasts of new development for all land uses (office, retail, hotel, and housing) and accounts for the demolition and conversion of existing space. The second approach accounts for the net addition of office and retail development. Moreover, the Downtown Plan forecast methodology incorporates changes in economic activity and employment that would occur in the use of existing space, while the list includes the changes accommodated by net new construction and some conversions./5/ The Downtown Plan forecast also includes employment growth, such as building maintenance and construction employment, that is not directly related to the occupancy of space. The Downtown Plan forecast incorporates changes over time in residence patterns, reflecting changes in the regional distribution of population, housing, and employment. The list approach applies relationships derived from current conditions to the future situation, assuming no changes over time. The Downtown Plan approach is currently limited to the C-3 District while the list covers a larger geographic area. In addition, there is no definite timeframe associated with the list, while the Downtown Plan forecast represents a best estimate of the development likely to be built and occupied from 1984 to

2000. It is because of these differences that the cumulative estimates of future residence patterns under each approach are not comparable. Within each approach, however, the project can be compared to the cumulative totals as described above.

Housing Market Implications for San Francisco/6/

With continued employment growth, there would be more people with preferences for San Francisco housing and with greater financial resources to pay for housing. This additional demand for housing would be added to an otherwise large group of consumers with preferences for City housing.

The supply of housing is expected to be expanded in San Francisco. However, the private market is currently unable to directly produce an adequate supply of affordable housing. This situation arises from a number of national, regional, and local factors and is expected to continue.

There would be greater competition for available housing units with employment growth than without it. As a result of increased competition, housing prices and rents would be higher with continued employment growth than without it. How much higher depends on the future of other factors (such as interest rates and the availability of financing) and cannot be easily quantified. Generally, continued employment growth at the levels reflected by the Downtown Plan Draft EIR forecast and the cumulative list could contribute to a future situation where housing prices and rents are moderately higher, on average, than current levels. At a minimum, employment growth is likely to be among the factors which keep prices and rents at their current levels, in constant dollars.

A more competitive City housing market with higher prices/rents would affect the type and quality of housing that can be purchased or rented for various prices and rents, the share of financial resources devoted to housing, and the extent to which housing needs and preferences are met. Over the long term, it could also affect the mix of types of residents in the City.

Different households would be affected in different ways. There would be people who decide not to move into the City and existing residents who would eventually move out of the City for more acceptable housing elsewhere. There would be many individuals who continue to live in San Francisco and pay higher prices/rents for City housing. Still others, who are unable or unwilling to pay more, would accept housing which does not meet their preferences or needs. And finally, there would be owners of existing units who would benefit to the extent that their housing appreciates.

Generally, those households with fewer financial resources available to pay for housing would make the most sacrifices in adapting to more competitive market conditions. They would have less ability to compete for housing and fewer options available to them. San Francisco currently has and will continue to attract a large number of persons that would be faced with these difficulties in securing housing.

The proposed project, as part of the future pattern of downtown office development, would contribute to these housing market impacts. The project's individual contribution cannot be separately identified.

Regional Perspective on Residence Patterns and Housing /6a/

The residence patterns of San Francisco workers can also be considered from a regional perspective. In fact, future labor force, housing, and employment throughout the region were important factors in the Downtown Plan residence patterns forecasts. Expected trends in labor force participation, workers per household, housing production, and employment growth provided the future regional context in which the Downtown Plan forecasts were prepared.

Table 9presents residence patterns forecasts for C-3 District workers as prepared for the Downtown Plan Draft EIR and an alternative residence patterns forecast for downtown workers using the March 10, 1984 list of downtown projects./7/ Both residence patterns forecasts are also shown as percentages of the total employed population in each part of the region, as forecast by the Association of Bay Area Governments (ABAG)./8/

(Table 9 replaces Table C-2, page 268 in the FEIR.)

TABLE 9: REGIONAL PERSPECTIVE ON RESIDENCE PATTERNS

	Downtown Plan Forecast of Residence Patterns of C-3 District Workers (a)						List-Based Forecast of Residence Patterns Of Workers in Greater Downtown Area (b)					
	Number of Workers			Percent of Total Employed Population In Each Part of Region (c)			Number of Workers			Percent of Total Employed Population In Each Part Of Region (c)		
	Total 1984	Total 2000	Change 1984-2000	Total 1984	Total 2000	Change 1984-2000	Total 1984 (d)	Total Future (d)	Change from 1984 (e)	Total 1984	Total Future	Change from 1984 (f)
San Francisco	159,000	189,000	30,000	45%	47%	56%	198,000	230,000	32,000	57%	57%	59%
East Bay	73,000	110,000	37,000	7	8	9	94,000	114,000	20,000	9	8	5
Peninsula	35,000	48,000	13,000	4	4	4	46,000	54,000	8,000	5	4	2
North Bay	19,000	29,000	10,000	7	7	7	27,000	33,000	6,000	10	9	4
TOTAL	286,000(g)	376,000 (g)	90,000	11%	11%	10%	365,000	431,000	66,000	14%	12%	7%

/a/ Includes permanent employment and annual average construction employment. Incorporates changes in employment for office, retail, hotel and other uses.

/b/ There is no time frame associated with development of the projects on the list. This amount of space would probably be absorbed between 1990 and 2000. If all the projects on the list were built before the year 2000, there would be more development (not currently on the list) and thus more workers in the downtown area by that year. In this case, the percent of the regional employed population in 2000 would be higher than shown here.

/c/ Forecasts of employed residents in Bay Area counties from ABAG, Projections '83. ABAG presents forecasts of employed residents for 1985 and 2000. For comparability with the cumulative analyses (which use 1984 as the base year), ABAG's 1980 to 1985 projections were prorated over the five-year period to estimate 1984 conditions for the region.

/d/ The 1984 estimate of total employment in the greater downtown area includes C-3 District estimates from the Downtown Plan DEIR and order-of-magnitude estimates for the other downtown areas in that year. For the future employment estimate, estimates of employment growth from the development of buildings on the list are added to the 1984 base year totals. See note /e/.

/e/ This estimate is based on all projects on the list except those included in the Downtown Plan DEIR 1984 base year estimate. The estimates of employment and residence patterns for projects on the list are based on data in the Transportation Guidelines, September, 1983.

/f/ The ABAG forecasts of employed population in eacb area of the region in 2000 are used for this calculation. As mentioned in note /b/, the projects on the list are likely to be built and occupied between 1990 and 2000. Therefore, by the year 2000, more development (and thus more workers) could be expected and the percentages of the total regional employed population would be higher.

/g/ The Downtown Plan forecasts include some workers who would live outside the Bay Area. This is a small number and is not shown here.

SOURCE: Recht Hausratb & Associates

The Downtown Plan 1984 estimates and forecasts for 2000 (first three columns on the left) indicate that the largest number of C-3 District workers would live in San Francisco, followed by the east bay, the peninsula, and the north bay. The largest increase of C-3 District workers would be for those living in the east bay, followed by San Francisco, the peninsula and the north bay. The next three columns compare the Downtown Plan residence patterns forecasts for C-3 District workers to ABAG's forecasts of total employed residents throughout the region. C-3 District workers would represent a relatively large share of all employed San Franciscans and relatively smaller proportions of the labor force in other Bay Area counties. Comparing 1984 and 2000, there would not be major changes in the C-3 District percentages of the labor force in each area. The same conclusions would apply in the case of any of the five Alternatives to the Downtown Plan.

The residence patterns forecast using the list of downtown projects leads to similar conclusions. In this case, the residence patterns for downtown workers do not consider changes over time in regional labor force, housing, and employment./9/ The downtown workers estimated using this approach also represent a large share of both the totals and the growth of employed residents in San Francisco and relatively smaller shares of both the totals and growth of employed residents elsewhere in the region. As in the case of the Downtown Plan forecast in 2000, there would not be large changes from the 1984 percentages showing downtown workers relative to the rest of the region's labor force.

Because regional housing supply assumptions are one basis for the forecasts, the above observation that the changes over time in the C-3 District or downtown worker percentages of the region's labor force in each area would not be large indicates that C-3 District/downtown workers would not require much larger shares of the region's housing in the future than they do now. In the future, the relationship between C-3 District/downtown workers and other workers competing for housing in the region would be relatively similar to the conditions in 1984.

In terms of the region's housing market, downtown development and employment growth would not, by themselves, have a major effect on the housing markets in other Bay Area counties or in the region overall. As a part of total regional employment growth to the year 2000, however, increases in San Francisco employment can be viewed as contributing to regional housing demand. A strong regional economy has been and will continue to be a factor supporting a competitive regional housing market with relatively high housing prices and rents.

NOTES - Residence Patterns and Housing

/1/ For a description of the methodology used to forecast residence patterns, see Appendix I, Downtown Plan Draft EIR, pp. I.8-I.30. For a description of existing and forecast future residence patterns of C-3 District workers, see Downtown Plan Draft EIR, Section IV.D, Residence Patterns and Housing.

/2/ Downtown Plan Draft EIR, p. IV.D.67.

/3/ In order to ensure consistency with the cumulative transportation analysis and to provide information on region-wide impacts, this section does not use the OHPP and 101 Montgomery formulas for estimating the number of workers who would live in San Francisco. These formulas only provide estimates of office workers living in San Francisco; they do not include factors for estimating workers living in other parts of the region. These formulas were applied to the project in the project-specific impact section of the original FEIR, p. 74.

/4/ For the 1984 estimates of workers in the greater downtown area, the C-3 District estimates of employment and residence patterns prepared for the Downtown Plan DEIR were used as a base to which order-of-magnitude estimates for that year for the other downtown areas were added. The Transportation Guidelines were used to estimate employment and residence patterns for projects on the March 10, 1984 list for the greater downtown area. The workers associated with these new projects were added to the 1984 base year total estimate.

/5/ As explained in the Downtown Plan Draft EIR, the use of existing space is expected to intensify by the year 2000. For example, office employment growth is forecast to exceed the growth of employment that would be accommodated by the development of new office space. From 1990 to 2000, more intensified use of existing space would be equivalent to about a 40 percent increase in the net addition of office space forecast for that period. (See p. IV.B.41 in Downtown Plan Draft EIR.)

/6/ This subsection presents a summary of the discussion in the Downtown Plan Draft EIR (see pp. IV.D.77 - IV.D.82 and pp. I.1 - I.8), which is hereby incorporated by reference pursuant to State CEQA Guidelines, Section 15150.

/6a/ This subsection replaces the first two sentences and the last sentence of the first full paragraph, page 74 of the FEIR.

/7/ As explained earlier, there are several differences in the estimates of employment and residence patterns derived from these two approaches to cumulative analysis. The most important differences are apparent in the two employment estimates shown in this table. The Downtown Plan employment totals for the C-3 District are smaller than the total employment estimate for the greater downtown area, primarily because the latter estimate covers the C-3 District, plus other areas such as the south of Market area, Civic Center, and the northern waterfront. The growth for this larger downtown area is smaller than the C-3 District growth, however, because the list of downtown projects includes known projects, not all development likely to occur by 2000, and also does not incorporate changes in the use of existing space, such as increasing office employment densities.

/8/ Association of Bay Area Governments, Projections '83. This report presents forecasts from 1980 to 2000 of population, employment, households and employed residents for each of the nine Bay Area counties.

/9/ The distribution of downtown workers among the Bay Area counties is based on the residence patterns forecasts for 1984 prepared for the Downtown Plan Draft EIR and on the Department of City Planning's Transportation Guidelines for Environmental Impact Review, September, 1983.

VI. MITIGATION MEASURES

The mitigation measures described in the FEIR as "Measures Proposed as Part of the Project" were part of project plans and were also incorporated as conditions of project approval by City Planning Commission Resolution No. 9294. Measures not described in the FEIR, whether or not they were part of the project, are described below.

A. TRANSPORTATION

Measures Included as Part of Project

The following measures reducing the project's contribution to cumulative parking demand effects were not described in the FEIR but were required as part of project approval and are considered to be part of the project:

1. The project sponsor shall: (i) participate with other project sponsors and/or the San Francisco Parking Authority in undertaking studies of the feasibility of constructing an intercept commuter parking facility in a location appropriate for such facility to meet the unmet demand for parking for those trips generated by the project which cannot reasonably be made by transit, and (ii) participate with other project sponsors and/or the Municipal Railway in studies of the feasibility of the establishment of a shuttle system serving the project site and the parking facility.

2. To meet the short-term parking deficit identified in the EIR, the project sponsor shall (a) provide for the conversion of existing long-term parking spaces in the core to short-term use, and/or (b) provide the short-term parking spaces in the short-term parking belt as defined in the Master Plan, either independently or in association with other project sponsors and/or the San Francisco Parking Authority, to meet the demand for those short-term trips which cannot reasonably be accommodated by public transit.

Project Environmental Impact Reports prepared subsequent to the FEIR on the Montgomery/Washington project, which included a complete cumulative analysis fully covering 17 million or more sq. ft. of new office space, did not result in adoption of any new mitigation measures that would reduce cumulative transportation effects caused by an individual project. Other measures that would reduce cumulative city-wide and regional transportation effects could be implemented by public agencies but are not feasible or appropriate for individual project sponsors as noted below.

Measures That Could Be Implemented by Public Agencies

If the City were to adopt and implement the transportation improvements described in the Downtown Plan, cumulative transportation impacts would be reduced within San Francisco and, to the extent that San Francisco could influence transportation improvements recommended in the Plan for areas outside the City, adoption of the Plan would reduce regional cumulative impacts caused by downtown growth. The Downtown Plan is presently under review; action on the Plan is expected by the City Planning Commission during late summer, 1984.

Should the Downtown Plan not be implemented, the City could act to implement the transportation mitigations described in Section V.E., Mitigation, pages V.E.4-28, in the Downtown Plan Draft EIR. These measures are similar or identical to those in the Downtown Plan and include, in summary: measures to construct and maintain rail rapid transit lines from downtown San Francisco to suburban corridors and major non-downtown centers in San Francisco; measures to fund Vehicle Acquisition Plans for San Francisco and regional transit agencies to expand existing non-rail transit service; provide exclusive transit lanes on City streets and on freeways; reduce incentives to drive by reducing automobile capacities of bridges and highways in certain circumstances and by discouraging long-term parking; measures to encourage carpools, vanpools, and bicycle use; and measures to improve pedestrian circulation within downtown San Francisco./1/ Some of the Implementing Actions would require approval by decision-makers outside the City and County of San Francisco; many of the measures would require action by City agencies other than the City Planning Commission, such as the San Francisco Public

Utilities Commission and/or Board of Supervisors. These measures are system-wide measures that must be implemented by public agencies. Other than project-specific measures such as the parking mitigation measures described above as part of the project or such as the Transit Impact Development Fee assessment required by San Francisco ordinance 224-81 which contribute indirectly to implementation of these system-wide measures, it is not appropriate or reasonable to impose mitigation at system-wide levels on individual projects.

Measures Not Included As Part of the Project

The following measures would contribute to mitigation of cumulative transportation impacts but are not included as part of the project.

1. A portion of the office space in the project could be required to remain vacant. This measure would reduce the number of new employees with jobs in downtown, although not necessarily in direct proportion to the amount of space left vacant, since some firms that might otherwise have occupied the space could merely increase employee density. To the extent that fewer people were employed downtown, fewer commuters would contribute to cumulative peak period transportation effects. Project sponsor has rejected this measure as economically infeasible. The City Planning Commission will determine whether or not to impose the measure as a condition of approval.

2. Increasing contribution requirements over and above the present $5.00 per sq. ft. requirement imposed by San Francisco Ordinance 220-81 (Transit Impact Development Fee) would provide further funding to San Francisco for transit and parking and possibly traffic impact mitigation, depending upon the purposes for which the fees might be designated. These fees might allow transportation improvements such as those described in the Downtown Plan DEIR to be implemented earlier than would be possible through Federal, State or other City funding. The City Planning Commission has no jurisdiction to require such mitigation. CEQA does not confer on the decision maker independent authority to mitigate where separate legislative authority is not otherwise available. (Pub. Res. Code Section 21004.)

B. AIR QUALITY

Measures that would reduce transportation impacts by reducing the number of vehicle miles traveled would reduce cumulative air quality effects.

C. HOUSING

By complying with the Commission's Office Housing Production Program Guidelines, the project has reduced or will reduce project-specific contributions to cumulative housing impacts in San Francisco to an acceptable level. The Commission has no jurisdiction to require housing construction in other localities.

D. ENERGY

The project is required to comply with Title 24 Energy Standards and thus would not breach state standards for energy consumption. However, in order to provide for possible further reductions in energy consumption, the following additional measure was included as a condition of approval and is therefore included as part of the project:

> One year after occupancy of the structure, actual energy consumption, converted to thousands of British Thermal Units, from Pacific Gas and Electric monthly billings, shall be reported to the Department of City Planning. If the consumption exceeds applicable state standards in effect at the time of issuance of the Building Permit, a PG&E or other certified energy audit shall be performed, and those recommended energy conservation measures which have a 3-year or less payback shall be implemented.

The measures included as part of the project would reduce energy impacts to an insignificant level.

NOTE - Mitigation Measures

/1/ Department of City Planning, Downtown Plan Draft Environmental Impact Report, EE81.3, March 16, 1984, Section V.E., "Transportation and Circulation," pp. V.E.4-28. This material is hereby incorporated by reference and is summarized in the above text.

VII. SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROJECT IS IMPLEMENTED

The following are expected significant impacts subject to final determination by the City Planning Commission as part of its certification process. Chapter VII. of the Final Supplemental EIR will be revised, if necessary, to reflect the Commission's findings.

This chapter identifies significant cumulative environmental impacts that could not be eliminated or reduced to an insignificant level by mitigation measures included as part of the project, as described in Chapter VI. Mitigation.

Note that contributions of the project to possible cumulative impacts on energy use and housing demand have been mitigated to a level of insignificance by measures required as part of the project approval.

The project would be part of a trend of denser development in downtown San Francisco. The project would contribute to cumulative traffic increases on downtown streets and on freeways and bridges near downtown San Francisco, and would contribute to cumulative passenger loading impacts on Muni, BART and other transit carriers. Mitigation measures are available which would reduce these effects on a system-wide basis; these mitigation measures could be implemented by the City and County of San Francisco and other agencies with jurisdiction over highways, bridges and transit systems but could not be implemented by individual project sponsors.

VIII. EIR AUTHORS AND PERSONS CONSULTED

SUPPLEMENTAL EIR AUTHOR

San Francisco Department of City Planning
450 McAllister Street
San Francisco, CA 94102
Environmental Review Officer: Alec S. Bash
Assistant Environmental Review Officer: Barbara Sahm
Energy: Sally Maxwell, Environmental Planner III

SUPPLEMENTAL EIR CONSULTANTS

Environmental Science Associates, Inc. (Prime Consultant)
1291 E. Hillsdale Boulevard
Foster City, CA 94404
Associate-In-Charge: Richard Cole, Ph.D., Vice President
Project Manager: Marty Abell
Deputy Project Manager: Fay Duffner
Transportation: Frederick C. Dock, P.E., Senior Transportation Manager

Air Quality

Environmental Impact Planning Corp.
319 Eleventh Street
San Francisco, CA 94103
Richard Pollack, Ph.D., Director, Division of Atmospheric Sciences
Project Manager: Suzanne McAdams

Housing and Residence Patterns

Recht Hausrath and Associates
1212 Broadway
Oakland, CA 94612
Principal in Charge: Linda Hausrath
Project Manager: Sally Nielsen

PROJECT SPONSOR

Crow-Spieker Company, doing business as Trammell Crow Company
601 Montgomery St., Suite 410
San Francisco, CA 94111
Project Manager: Patrick Gilligan

PERSONS CONSULTED

Pacific Gas and Electric Company
One Market Plaza, Suite 3001
San Francisco, CA 94106
Ken Austin, Commercial-Industrial Marketing Supervisor

San Francisco Department of City Planning
450 McAllister Street
San Francisco, CA 94102
David Rubin, Engineering Associate II

IX. DISTRIBUTION LIST

FEDERAL AND STATE AGENCIES

General Projects Section
Air Quality Resources Board
P.O. Box 2815
Sacramento, CA 95814
Attn: Don Rake

State Office of Intergovernmental Management
State Clearinghouse
1400 - Tenth Street
Sacramento, CA 95814

REGIONAL AGENCIES

Association of Bay Area Governments
P.O. Box 2050
Oakland, CA 94604

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109
Attn: Irwin Mussen

California Archaeological Site Survey
Regional Office
Northwest Information Center
Department of Anthropology
Sonoma State University
Rohnert Park, CA 94928

California Department of Transportation
Business and Transportation Agency
P.O. Box 7310
San Francisco, CA 94120
Attn: Darnall W. Reynolds,
District CEQA Coordinator

California Department of Transportation
Public Transportation Branch
P.O. Box 7310
San Francisco, CA 94120
Attn: Larry Layne

CITY AND COUNTY OF SAN FRANCISCO

Bureau of Building Inspection
450 McAllister Street
San Francisco, CA 94102
Attn: Robert Levy, Superintendent

City Attorney's Office
Room 206, City Hall
San Francisco, CA 94102
Attn: Paula Jesson,
Deputy City Attorney

Landmarks Preservation Advisory Board
450 McAllister Street
San Francisco, CA 94102
Attn: Jonathan Malone

Mayor's Economic Development Council
480 McAllister Street
San Francisco, CA 94102
Attn: Mr. Richard Goblirsch

Public Utilities Commission
Bureau of Energy Conservation
949 Presidio Avenue, Room 111
San Francisco, CA 94115
Attn: Barbara Moy, Assistant Director

Public Utilities Commission
949 Presidio Avenue, Room 150
San Francisco, CA 94115
Attn: Tom Jordan,
Director Bureau Services

Recreation & Park Department
McLaren Lodge
Golden Gate Park
Fell and Stanyan Streets
San Francisco, CA 94117
Attn: Deborah Lerner

San Francisco Bureau of Engineering
Streets and Highways
45 Hyde Street, Room 212
San Francisco, Ca 94102

San Francisco City Planning Commission
450 McAllister Street
San Francisco, CA 94102
Attn: Lee Woods
Toby Rosenblatt, President
Susan Bierman
Roger Boas
Norman Karasick, Alt.
Jerome Klein
Yoshio Nakashima
C. Mackey Salazar
Douglas G. Wright, Alt.

San Francisco Committee for Utility Liaison on Construction and Other Projects c/o GES - Utility Liaison
City Hall, Room 363
San Francisco, CA 94102
Attn: Mr. Joseph Corollo

San Francisco Department of Public Works
Traffic Engineering Division
460 McAllister Street
San Francisco, CA 94102
Attn: Scott Shoaf

San Francisco Fire Department
260 Golden Gate Avenue
San Francisco, CA 94102
Attn: Ed Phipps, Chief
Division of Planning & Research

San Francisco Municipal Railway
MUNI Planning Division
949 Presidio Avenue, Room 204
San Francisco, CA 94115
Attn: Peter Straus

San Francisco Public Utilities Commission
City Hall, Room 287
San Francisco, CA 94102
Attn: Mr. Rudy Nothenberg

San Francisco Real Estate Dept.
450 McAllister Street, Room 600
San Francisco, CA 94102
Attn: Mr. Wallace Wortman,
Director of Property

Water Department
Distribution Division
425 Mason Street
San Francisco, CA 94102
Attn: George Nakagaki, Manager

GROUPS AND INDIVIDUALS

AIA
San Francisco Chapter
790 Market Street
San Francisco, CA 94102

Bay Area Council
348 World Trade Center
San Francisco, CA 94111

Bendix Environmental Research, Inc.
1390 Market Street - Suite 902
San Francisco, CA 94102

Tony Blaczek
Finance Department
Coldwell Banker
1 Embarcadero Center, 23rd Floor
San Francisco, CA 94111

John E. Bonin
Knowlton Realty Ltd.
Suite 2720, Embarcadero Center
San Francisco, CA 94111

Peter Bosselman
Environmental Simulation Laboratory
119 Wurster Hall
University of California
Berkeley, CA 94720

Roger Boyer Associates
215 Leidesdorf
San Francisco, CA 94111
Attn: Anita

Brobeck, Phleger, Harrison
One Market Plaza
San Francisco, CA 94105
Attn: Jonnie T. Jacobs, Esq.

Michael Buck
1333 - 35th Avenue
San Francisco, CA 94122

David Capron
Lincoln Property Company
222 Sansome Street
San Francisco, CA 94104

Dale Carlson
369 Pine St., #800
San Francisco, CA 94104

Charter Commercial Brokerage Company
Market Research Department
Two Embarcadero, #1860
San Francisco, CA 94111

Chickering & Gregory
3 Embarcadero Center
23rd Floor
San Francisco, CA 94111
Attn: Kent Soule

Coalition for San Francisco Neighborhoods
Mrs. Dorice Murphy
175 Yukon Street
San Francisco, CA 94114

Joseph Cortiz
2853 22nd Street
San Francisco, CA 94110

Calvin Dare
Cushman Wakefield
555 California - Suite 2700
San Francisco, CA 94104

Alex Diamondidis
#58 Varennes
San Francisco, CA 94133

DKS Associates
1419 Broadway, Suite 700
Oakland, CA 94612 - 2069

Rita Dorst
RB International Services
9 Boston Ship Plaza
San Francisco, Ca 94111

Downtown Association
582 Market Street
San Francisco, CA 94105
Attn: Mr. Lloyd Pflueger

Downtown Senior Social Services
295 Eddy Street
San Francisco, CA 94102

Michael V. Dyett
Blayney-Dyett
70 Zoe Street
San Francisco, CA 94103

Environmental Impact Planning
319 Eleventh Street
San Francisco, CA 94103
Attn: Suzanne McAdams

Environmental Planning & Research, Inc.
649 Front Street
San Francisco, CA 94111
Attn: Leslie de Boer

Environmental Science Associates
1291 E. Hillsdale Blvd.
Foster City, CA 94404
Attn: Jo Julin

Farella, Braun & Martel
235 Montgomery Street
San Francisco, CA 94104

Friends of the Earth
1045 Sansome Street #404
San Francisco, CA 94111
Attn: Connie Parrish

The Foundation for San Francisco's
Architectural Heritage
2007 Franklin Street
San Francisco, CA 94109
Attn: H. Grant Dehart,
Executive Director

Charles T. Gill
The Aspen Group West, Inc.
505 Sansome Street, Suite 1005
San Francisco, CA 94111

Annette M. Granucci
Commercial News Publishing Co.
125 Twelfth Street
San Francisco, CA 94103

Gruen Gruen + Associates
564 Howard Street
San Francisco, CA 94105

Donald Head & Associates
109 Minna Street, #293
San Francisco, CA 94105

Heller, Ehrman, White & McAuliffe
44 Montgomery Street - 32nd Floor
San Francisco, CA 94104
Attn: Robert L. Gibney, Jr.

Valerie Hersey
Munsell Brown
950 Battery
San Francisco, CA 94111

Sue Hestor
4536 - 20th Street
San Francisco, CA 94114

Carl Imparato
1205 Garfield
Albany, CA 94705

Jefferson Associates, Inc.
683 McAllister Street
San Francisco, CA 94102
Attn: Gordon Jacoby

Jones Lang Wootton
710 One Embarcadero Center
San Francisco, CA 94111
Attn: Sheryl Bratton

Lee & Fan
Architecture & Planning, Inc.
580 Market St., Suite 300
San Francisco, CA 94104
Attn: Robert Fan, Jr.

Legal Assistance to the Elderly
Brent Kato
333 Valencia Street
San Francisco, CA 94103

Carole Lester
Lawyers Title Company of San Francisco
300 Montgomery Street, Suite 1135
San Francisco, CA 94104

Barry Livingston
Urban Center Development Limited
One Embarcadero Center, Suite 2216
San Francisco, CA 94111

Doug Longyear
Finance Department
Coldwell Banker
1 Embarcadero Center, 23rd floor
San Francisco, CA 94111

Marathon U.S. Realties, Inc.
595 Market Street, Suite 1330
San Francisco, CA 94105
Attn: Rolf Wheeler

Robert Meyers Associates
582 Market Street, Suite 1208
San Francisco, CA 94104

Pillsbury, Madison & Sutro
P.O. Box 7880
San Francisco, CA 94120
Attn: Susan Pearlstine

Planning Analysis & Development
530 Chestnut
San Francisco, CA 94133
Attn: Gloria Root

Mrs. G. Bland Platt
339 Walnut Street
San Francisco, CA 94118

Charles Hall Page & Associates
364 Bush Street
San Francisco, CA 94104

Research & Decisions Corporation
375 Sutter Street, Suite 300
San Francisco, CA 94108
Attn: Deborah McNamee

David P. Rhoades
120 Montgomery Street, Suite 1600
San Francisco, CA 94104

San Francisco Beautiful
41 Sutter Street
San Francisco, CA 94104
Attn: Mrs. H. Klussmann, President

San Francisco Building and
Construction Trades Council
400 Alabama Street, Room 100
San Francisco, CA 94110
Attn: Stanley Smith

San Francisco Chamber of Commerce
465 California Street
San Francisco, CA 94105
Attn: Richard Morten

San Francisco Convention &
Visitors Bureau
201 3rd Street, Suite 900
San Francisco, CA 94103
Attn: George D. Kirkland,
Executive Director

San Francisco Ecology Center
13 Columbus Avenue
San Francisco, CA 94111

San Francisco Junior Chamber of Commerce
251 Kearny Street
San Francisco, CA 94104

San Francisco Labor Council
1855 Folsom Street
San Francisco, CA 94103
Attn: Bernard Speckman

San Francisco Organizing Project
1208 Market Street
San Francisco, CA 94102

San Francisco Planning &
Urban Research Association
312 Sutter Street
San Francisco, CA 94108

San Franciscans for Reasonable Growth
241 Bartlett Street
San Francisco, CA 94110
Attn: David Jones

San Francisco Forward
690 Market Street
San Francisco, CA 94104
Attn: Frank Noto

San Francisco Tomorrow
942 Market, Room 505
San Francisco, CA 94102
Attn: Tony Kilroy

John Sanger & Associates
2340 Market Street
San Francisco, CA 94114

Senior Escort Program
South of Market Branch
814 Mission Street
San Francisco, CA 94100
Attn: Neighborhood Coordinator

Sierra Club
530 Bush Street
San Francisco, CA 94105
Attn: Becky Evans

South of Market Alliance
74 Langton Street
San Francisco, CA 94103

Square One Film & Video
725 Filbert Street
San Francisco, CA 94133

Wayne E. Stiefvater, President
Appraisal Consultants
701 Sutter Street
San Francisco, CA 94109

Tenants and Owners Development Corp.
230 - Fourth Street
San Francisco, CA 94103
Attn: John Elberling

Rod Teter
Cahill Construction Company
425 California Street, Suite 2300
San Francisco, CA 94103

Jerry Tone, Loan Officer
Real Estate Industries Group
Wells Fargo Bank, N.A.
475 Sansome Street, 19th floor
San Francisco, CA 94111

Timothy A. Tosta
333 Market St., Suite 2230
San Francisco, CA 94105

Jeff Vance
Campeau Corp. of California
1 Montgomery St., 22nd Floor
San Francisco, CA 94104

Kathy Van Velsor
19 Chula Lane
San Francisco, CA 94114

Steven Weicker
899 Pine Street, #1610
San Francisco, CA 94108

Howard Wexler
235 Montgomery, 27th floor
San Francisco, CA 94104

Eunice Willette
1323 Gilman Avenue
San Francisco, CA 94124

Leslie Yee
1531 Powell Street
San Francisco, CA 94133

Marie Zeller
Whisler-Patri
590 Folsom Street
San Francisco, CA

MEDIA

San Francisco Bay Guardian
2700 - Nineteenth Street
San Francisco, CA 94110
Attn: Patrick Douglas, City Editor

San Francisco Chronicle
925 Mission Street
San Francisco, CA 94103
Attn: Evelyn Hsu

San Francisco Examiner
P.O. Box 7260
San Francisco, CA 94120
Attn: Gerald Adams

San Francisco Progress
851 Howard Street
San Francisco, CA 94103
Attn: E. Cahill Maloney

The Sun Reporter
1366 Turk Street
San Francisco, CA 94115

Tenderloin Times
146 Leavenworth Street
San Francisco, CA 94102
Attn: Rob Waters

Leland S. Meyerzove
KPOO - FM
P.O. Box 6149
San Francisco, CA 94120

LIBRARIES

Cogswell College Library
600 Stockton Street
San Francisco, CA 94108

Document Library
City Library - Civic Center
San Francisco, CA 94102
Attn: Faith Van Liere

Environmental Protection Agency Library
215 Fremont Street
San Francisco, Ca 94105
Attn: Jean Circiello

Stanford University Library
Stanford, CA 94305

Government Publications Department
San Francisco State University
1630 Holloway Avenue
San Francisco, CA 94132

Hastings College of the Law - Library
200 McAllister Street
San Francisco, CA 94102-4978

Institute of Governmental Studies
1209 Moses Hall
University of California
Berkeley, CA 94720

ADJACENT PROPERTY OWNERS

William S. & Ann F. Breall
c/o California Realty & Land, Inc.
1322 Grant Avenue
San Francisco, CA 94133

Joyce C. Castellino
c/o Raymond & Mary Koobatian TRS
482 Gellert Drive
San Francisco, CA 94132

Crow-Spieker-Cahill Ltd.
2180 Sand Hill Road
Menlo Park, CA 94025

Gordon C. Cuneo, Trustee
c/o Bob Biers
708 Montgomery Street
San Francisco, CA 94111

Doro's Restaurant
c/o Milton Meyer & Co.
1 California Street
San Francisco, CA 94111

Fantec Development Corp.
c/o Charles Wu
15340 Mendocino Street
San Leandro, CA 94579

Four Seas Investment Group
c/o Jack P. Wong
340 Stockton Street
San Francisco, CA 94108

Robert Grison
1333 Jones Street, #908
San Francisco, CA 94109

Ming K. & Pearl W. Hui
160 Valparaiso Street
San Francisco, CA 94111

Carl James
c/o John J. Dito & Son
596 Pacific Avenue
San Francisco, CA 94133

Justice Investors
1 Embarcadero Center, Suite 3303
San Francisco, CA 94111

Mario and Ernestine Mondin
659 Merchant Street
San Francisco, CA 94111

Gee On
1717 Stockton Street
San Francisco, CA 94133

Andrew & Chow Po Ow
642 Washington Street
San Francisco, CA 94111

Pyramid Investment Corp.
600 Montgomery Street
San Francisco, CA 94111

S.F. Unified School District
135 Van Ness Avenue
San Francisco, CA 94012

Transamerica Title Insurance Co.
c/o J.J. Devries
600 Montgomery Street, 5th Floor
San Francisco, CA 94111

X. APPENDICES

A. COURT ORDER

Peremptory Writ of Administrative Mandamus

APPENDIX A: PEREMPTORY WRIT OF ADMINISTRATIVE MANDAMUS

SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE CITY AND COUNTY OF SAN FRANCISCO

SAN FRANCISCANS FOR REASONABLE GROWTH, Petitioner, v. CITY AND COUNTY OF SAN FRANCISCO, et al., Respondents. CROW-SPIEKER No. 99, et al., Real Party in Interest.	No. 793064 PEREMPTORY WRIT OF ADMINISTRATIVE MANDAMUS

The People of the State of California

To the City and County of San Francisco, the City Planning Commission, and the Board of Permit Appeals, Respondents:

YOU ARE HEREBY COMMANDED to vacate your certification of completion of the Final Environmental Impact Report ("FEIR") for the Montgomery-Washington Project, EE No. 81.104E, and to prepare and publish, in compliance with the procedures set forth in the California Environmental Quality Act (Pub. Res. Code § 21,000 et seq.) ("CEQA") and the state Guidelines (14 Cal. Admin. Code § 15,000 et seq.) relating to supplements to environmental impact reports, a Supplemental Environmental Impact Report ("SEIR") on the project described in the FEIR. Said SEIR shall supplement the analysis in the FEIR of the cumulative impacts of the subject project together with other closely related past, present and reasonably foreseeable probable future projects. Your analysis of "probable future projects" shall include, to the extent reasonably feasible, proposed but as yet unbuilt office projects in downtown San Francisco which meet any of the following criteria:

(1) Projects which you currently have under environmental review, which shall include projects for which an application has been submitted for environmental review and the file for which application has not been closed or become inactive;

(2) Projects for which a negative declaration has been issued;

(3) Projects which hold a statutory exemption;

(4) Projects which hold a categorical exemption;

(5) Projects falling under the jurisdiction of other governmental agencies.

YOU ARE FURTHER COMMANDED, upon completion of preparation of said SEIR, to review it for completeness and accuracy, and if you find it to be complete and accurate, so to certify in compliance with CEQA.

YOU ARE FURTHER COMMANDED, upon such certification of the SEIR, to reconsider your resolution approving the project therein described, including mitigation measures and alternatives, in light of new information in the SEIR, and to affirm, modify or vacate that resolution in accordance with the discretion vested in you by law.

YOU ARE FURTHER COMMANDED to issue no final certificate of occupancy on said project until further order of this Court.

YOU ARE FURTHER COMMANDED to make and file a return to this writ on or before September 21, 1984, setting forth what you have done to comply. The Court will retain jurisdiction of this cause for the purpose of awarding costs, considering any application for attorney's fees, and for all other purposes pending entry of final judgment herein.

MAY 10 1984

[illegible], Clerk

By JEANNIE SMITH, Deputy

LET THE FOREGOING WRIT ISSUE.

Dated: MAY 8 1984

Daniel H. Weinstein
Judge of the Superior Court

APPENDIX B: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO

Process Used to Develop the Cumulative List of Office Projects In Downtown San Francisco:

The attached list of office and retail projects was prepared as a background document for a land use-based method of analyzing cumulative impacts. A land use-based cumulative analysis is one of the two methods of cumulative analyses suggested by the State CEQA Guidelines (Section 15130(b)(1)(A)), whereby a list of related projects is used to determine the combined effects of the whole and to determine the contribution of a proposed office or retail project to the overall cumulative effect. This is only one method of determining cumulative impacts. The other method of determining cumulative impacts is an analysis based on estimates of total employment projected for the area. This latter method is permitted by State Guidelines Section 15130(b)(1)(B) if the employment projections are based on an appropriate planning document.

The attached cumulative list is an expanded version of past lists and includes all office and large retail projects proposed, approved, under construction and recently completed in the greater downtown area which have active applications in the Department of City Planning. This list is appropriate for use only in a land-use based analyses of the cumulative impacts of office/retail projects in the greater downtown.

Relevant Redevelopment Agency projects have been included in the list. The Rincon Point/South Beach Redevelopment Area includes four projects: 77,000 sq. ft. of office space at 181 Steuart Street, 200,000 sq. ft. of office space on First Street, and a 30,000-sq.-ft. office building, all in at least preliminary negotiation stages betweeen the Agency and potential developers; and 453,000 sq. ft. of office space proposed by the U.S. Postal Service at the Rincon Annex site (Source: San Francisco Redevelopment Agency). The listing for the Yerba Buena Gardens in the YBC Redevelopment Area includes 1.2 million sq. ft. of office space in the Olympia and York proposal (Source: San Francisco Redevelopment Agency). Other office buildings in the YBC and applicable parts of the Western Addition Redevelopment Areas are listed under individual building names or addresses, based on information obtained from regular contact with redevelopment agency staff. Other jurisdictions are also contacted when the cumulative list is updated: the new 293,000-sq.-ft. State Office Building under construction at Van Ness and McAllister is included; no Federal office space is proposed in downtown San Francisco in the near future other than that at the Rincon Annex Post Office site in the Rincon Point Redevelopment Area, (Source: John Scales, General Services Administration, telephone conversation, April 11, 1984).

Hotel projects have not been included in the list because hotel uses have different peaking characteristics from office buildings and generally do not significantly affect peak-hour traffic or transit and therefore also do not contribute to effects such as maximum production of air pollutants (see 135 Main Final Supplemental EIR, EE81.61, certified November 30, 1982, p. 150). Residential projects have not been included because residential uses are extremely limited in the study area and generally are unrelated to office

uses. Residential travel in the downtown usually takes place in the contra-commute direction during peak hours and thus does not contribute to cumulative traffic or transit congestion. In addition, office trips in the p.m. peak period are assumed to be made by workers traveling to their residences. Trip generation calculated for residential uses includes persons returning to their homes after work in the p.m. peak. Inclusion in the cumulative analysis of residential uses in downtown San Francisco would double count project-generated travel: once when employees left their office building and again when they arrived at their residence if they lived in the downtown area.

Approximately 1.3 million sq. ft. of office space is proposed for locations outside the greater downtown area. All but two of these projects (San Francisco Executive Park just east of U.S. 101 near the southern border of San Francisco, proposed for about 1.1 million sq. ft., and St. Mary's Medical Office Building on Shrader at Fulton, proposed to be about 90,000 sq. ft.) are under 10,000 sq. ft. These projects are not included on the cumulative list because their impacts do not accumulate measurably with office space in the downtown area. Although the Executive Park proposal would contribute to the auto traffic on U.S. 101, the critical analysis points for p.m. peak-period cumulative downtown traffic on U.S. 101 are the freeway entrances near downtown, the approaches to the Bay Bridge, and the Alemany interchange which restricts southbound U.S. 101 traffic on the p.m. peak period. Executive Park traffic would not contribute measurably to peak demands on freeway entrances near downtown or peak direction at peak period impacts on the Alemany interchange and is factored in as part of the traffic approaching the Bay Bridge before cumulative downtown development is added. (Executive Park Subsequent DEIR, EE81.197E, September 9, 1983. Note that an EIR was prepared in 1976 for a project on this site; following permits for four of the proposed office buildings, the developer made major changes in the project that necessitated a new EIR which is now in progress.)

The Department's Master Project Log contains listings for projects which are no longer active for various reasons, such as no action by project sponsor in over one year, application withdrawn by sponsor, or project proposal revised to non-office or non-retail uses (examples of these projects include 272 Sutter, approximately 65,000 sq. ft., withdrawn by sponsor; 2nd and Harrison, 49,000 sq. ft., application revised from office space to parking lot). Some of these files have not been formally closed due to other higher staff priorities; however, the projects are not included on the cumulative list when staff assigned have concluded that the office project has been abandoned or withdrawn or the scope or nature of the proposal is so uncertain as to be not reasonably foreseeable.

In EIRs prepared during the latter half of 1983, the list used for cumulative analyses included a section labeled 'Completed But Not in Base Case.' As of the end of 1983, that list totaled over 6 million sq. ft. of office space and about 225,000 sq. ft. of retail space (see Table C-1, Projects Completed Before 1984, following page). These projects were included on earlier lists even though they were built and fully or partially occupied because some of the baseline data (measurements of the existing situation) for some transportation systems was collected in about mid-1982 and thus could not include the effects of these projects. The baseline has recently been updated to reflect 1984 for use in the Downtown Plan Draft EIR. Projects completed before 1984 are included in this updated baseline data. Using 1984 as the existing baseline situation means that projects completed by the end of 1983 should be omitted from the list of projects used for cumulative analysis in

TABLE B-1: PROJECTS COMPLETED BEFORE 1984

Assessor's Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.	Date Occupied
		Completed But Not In Base Case Analysis					
106	81.415ED	1299 Sansome	41,000	41,000	3,500	3,500	1983
141	81.151EV	100 Broadway	13,000	13,000			1983
163	EE81.1	901 Montgomery	63,000	63,000	18,800	18,800	1983
164	81.631D	847 Sansome	23,750	23,750			1983
164	81.251D	936 Montgomery	21,500	11,500			1983
196		736 Montgomery	40,000	40,000			1983
196	CU79.49	Pacific Lumber Co.	92,000	92,000			1983
206	81.165D	401 Washington/Battery	13,200	13,200	1,800	1,800	1983
228	81.610ED	569 Sacramento (C)	19,000	19,000			1983
237	DR80.6	353 Sacramento (Daon)	277,000	251,000	8,300	-2,000	1983
240	DR80.16	550 Kearny (Addition)	71,400	71,400			1983
263	CU79.12	101 California	1,265,000	1,257,000	24,700	-14,300	1983
287	81.550D	Sloane Building (C)	125,300	125,300	30,000	30,000	1983
292	DR79.13	Crocker National Bank	676,000	495,000	86,000	54,000	1983
312	EE79.370	50 Grant	90,000	90,000			1983
313	EE77.257	Nieman Marcus			143,000	128,000	1982
351	DR79.133	10 U.N. Plaza	92,050	92,050			1983
738	SFRA	One Flynn Center	25,000	25,000			1983
762	SFRA	Opera Plaza (M)	50,000	50,000			1983
3518	81.483V	291 10th St.	25,700	25,700		-25,700	1983
3702	EE81.25	1155 Market/8th	138,700	138,700	8,800	8,800	1983
3708	DR80.34	25 Jessie/Ecker Square	111,000	111,000			1983
3709	DR80.36	Five Fremont Center	791,200	722,200	35,000	17,300	1983
3712	DR79.11	Federal Reserve	640,000	640,000			1983
3717	EE78.413	150 Spear	330,000	330,000			1983
3718	DR79.12	Pacific Gateway	540,000	540,000	7,500	7,500	1983
3724	SFRA	Yerba Buena West	335,000	335,000			1983
3732	81.548DE	466 Clementina (C)	15,150	15,150			1983
3735	SFRA	Convention Plaza	339,000	339,000			1983
3735	SFRA	Planter's Hotel (C)	20,000	20,000			1983
3752	EE77-220	Office Bldg. (YBC SB-1)	11,000	11,000			1983
3763	81.287V	490 2nd at Bryant (C)	40,000	40,000			1983
3763	81.381	480 2nd at Stillman (C)	35,000	35,000			1983
3763	32.38EVD	400 2nd & Harrison	71,500	49,500			1983
3776	81.693EV	539 Bryant/Zoe	63,000	63,000			1983
TOTAL			6,504,450	6,188,450	367,400	227,700	

* (C) - Conversion (generally industrial and/or warehouse to office)
(M) - Mixed Use (office/residential/commercial)

SOURCE: Department of City Planning.

order to avoid counting effects of the projects twice. Because some of the baseline data previously used was collected more recently than mid-1982, list-based cumulative analyses overestimated some reported impacts by measuring the effects of office buildings as part of the baseline existing situation and by including the same office building in the calculations of future cumulative impacts. For example, PG&E is already serving office buildings completed in 1982 and 1983; including those buildings in calculations of future cumulative energy demand would count them twice. Therefore, for some part of the cumulative analyses, omitting projects completed by 1983 will provide more realistic predictions of future conditions.

The Department is aware of a proposal for the Southern Pacific property near China Basin, called 'Mission Bay.' The application for environmental review for that project has been withdrawn; no other applications have been filed. The project is too speculative to analyze; intensity, density and types of uses have not yet been determined by the developer. Parts of the developer's original proposal would require major rezoning and amendment of the City's Comprehensive Plan. Further, two San Francisco Supervisors have proposed that the City acquire the property, and one neighborhood has prepared a development plan quite different from that withdrawn by the developer. Without more settled decisions about this property, it is not reasonably foreseeable, to include it in the cumulative list analysis.

The Department of City Planning is in the process of preparing plans and environmental analyses for several areas in or near the downtown. Because these plans involve only proposals for zoning and other land use controls, they are not properly part of any cumulative list. Although analyses for these plans sometimes predict amounts of office space that could be built in the area being studied, the predictions are for purposes of assessing impacts of the plans and in no way reflect proposed future development.

Use of the Department's list for estimating cumulative impacts builds in certain limitations. It assumes, for example, that all proposals will be built at essentially the size proposed and that all buildings once built will be fully occupied. It is important to note that the cumulative list has not been adjusted to reflect temporary limitations on growth impacts by the City's actions to establish a Special Use District in the South of Market and a moratorium on new office and hotel space over 50,000 sq. ft. Nor has any adjustment been made to account for reduced building potential as proposed in the Downtown Plan (base FAR of 14:1 reduced to 10:1). Thus, the total square footages on the list of projects under formal review may be overestimated, and impacts based on the square footages may also in overestimated, if some buildings are not built, not fully occupied, or reduced in size.

TABLE B-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Downtown Office Projects Under Formal Review				
59	83.177E	1620 Montgomery	82,270	45,390		
110	82.129E	1000 Front	139,000	139,000	3,000	3,000
112	83.447E	1100 Sansome	55,000	48,000		
113	8264603	1171 Sansome	30,000	30,000		
113	82.418E	220 Green	3,520	3,520		
130	83.612C	1558 Powell	2,500	2,500		
136	83.476V	962 Battery	15,000	15,000		
192	83.412ED	1055 Stockton			81,500	66,500
194	83.128E	732 Washington	17,500	17,500	11,240	11,240
195	82.643E	660 Washington	3,938	3,938		
227	82.463E	505 Montgomery	327,300	300,670	12,100	-4,775
228	83.422E	560 Sacramento	48,000	31,000		
229	83.222EC	Embarcadero West	575,000	382,000	9,000	9,000
236	82.511E	222 Front	40,250	33,400	3,250	-0-
258	82.421E	Pine/Kearny	186,000	186,000	6,750	6,750
266	83.420ED	98 Battery	169,000	106,500		
267	83.421ED	225 Pine	134,000	134,000		
287	83.91ED	237 Kearny/Bush	99,600	87,800	6,100	2,400
288	83.148E	665 Bush (M)	12,400	2,600		-2,700
309	83.333E	212 Stockton	32,220	15,885	21,700	16,200
326	8312187	156 Ellis	3,200	3,200		
327	82.445E	Stockton/O'Farrell	43,300	25,750	57,950	28,000
331	81.448E	Mixed Use Development	50,000	50,000	70,000	49,000
336	83.21ECV	440 Turk	25,000	8,150		
642	83.218V	1699 Van Ness	20,000	20,000		
814	81.540E	101 Hayes	132,000	132,000	6,000	6,000
3526	83.475V	530-550 9th	42,300	42,300		
3702	83.196E	1169 Market, Trinity	820,000	805,000	40,000	40,000
3704	83.404	901 Market Penney's	145,500	126,000	80,000	80,000
3705	83.314E	5th and Market	880,000	778,000	120,000	40,000
3707	SFRA	YBC Office Bldg.	593,000	593,000		
3708	81.297ED	562 Mission	405,000	265,000	10,000	10,000
3708	83.75E	49 Stevenson	169,600	136,900	9,800	-2,900
3721	83.331E	100 First @ Mission	348,920	342,000		
3721	83.40EZD	524 Howard	279,000	279,000	15,000	15,000
3735	83.313E	35 Hawthorne	47,400	47,400	2,900	2,900
3736	83.311E	299 2nd @ Folsom	206,000	171,000	10,000	10,000
3744	84.41E	Hills Bros.	635,000	535,000	40,000	40,000

(continued on next page)

TABLE B-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984 (continued)

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Downtown Office Projects Under Formal Review				
3749	83.464EV	50 Guy Place	17,500	17,500		
3752	83.310E	837 Folsom	200,000	200,000		
3769	83.213EV	59 Harrison	113,500	49,750		
3776	83.451E	501 Bryant	67,000	35,000	14,000	4,000
3778	83.547E	775 Bryant	27,890	27,890	3,675	3,675
3786	82.33E	655 5th/Townsend	126,250	126,250		
3786	83.272EV	525 Brannan	13,500	13,500		
3788	82.352EV	640 2nd	39,100	37,400		
3789	82.31EV	615 2nd/Brannan (C)	90,000	70,000	9,300	9,300
3794	83.545V	139 Townsend	51,200	50,000		
3923	81.491EVF	1550 Bryant	80,600	49,600		
-	SFRA	Yerba Buena Gardens	1,340,000	1,340,000		
-	SFRA	Rincon Point/S. Beach	760,000	760,000		
TOTAL UNDER FORMAL REVIEW			9,744,260	8,721,295	643,265	442,590
		Major Downtown Office Projects; Approved, Not Yet Under Construction				
65	82.168V	990 Columbus	12,000	12,000		
112	81.258	Ice House (C)	209,000	209,000		
164	81.583D	50 Osgood Place	22,500	22,500	9,100	9,100
176	83.229E	801 Montgomery	31,800	31,800	6,200	6,200
176	82.368E	900 Kearny	25,000	25,000	5,000	5,000
225	81.403ED	814 Stockton	3,500	3,500	3,300	3,300
265	81.195ED	388 Market at Pine (M)	234,500	85,500	10,000	-8,500
268	81.422D	250 Montgomery at Pine	105,700	65,700	8,000	8,000
271	83.13E	582 Bush	18,100	18,100	800	800
288	81.687ED	222 Kearny/Sutter	150,000	49,950	10,000	-8,400
294	82.87D	44 Campton Place	7,600	7,600		
642	82.224VEC	1750 California	82,525	82,525		
669	81.667ED	1361 Bush	13,000	13,000		
671	82.24V	1581 Bush (C)	16,000	16,000		
690	SFRA	Post/Van Ness	88,000	88,000		
716	81.581ED	Polk/O'Farrell (M)	61,600	61,600	22,400	22,400
818	83.94EV	583-591 Hayes (C)	4,900	4,900		
3504	82.137V	44 Gough (C)	30,000	30,000		

(continued on next page)

TABLE B-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984 (continued)

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Major Downtown Office Projects; Approved, Not Yet Under Construction				
3702	81.549ED	1145 Market	137,500	108,500	8,000	8,000
3705	80.315	Apparel Mart III	332,400	332,400		
3707	81.492ED	90 New Montgomery	124,300	124,300	3,350	3,350
3707	81.245DA	New Montgomery Pl.	227,500	209,700	2,200	-3,900
3708	81.493ED	71 Stevenson	324,600	324,600	6,200	6,200
3709	81.113ED	Central Plaza	353,100	136,300	17,400	17,400
3717	81.183E	123 Mission	342,800	342,800		
3724	81.102E	Holland Ct. (C)	27,850	27,850		
3729	82.86D	774 Tehama	5,800	5,800		
3733	EE81.2	868 Folsom	65,000	65,000		
3733	82.29E	832 Folsom	50,000	50,000		
3735	SFRA	75 Hawthorne (C)	61,900	61,900		
3738	DR80.5	315 Howard	294,000	294,000	3,200	3,200
3749	EE81.18	Marathon - 2nd & Folsom	686,700	686,700	35,300	35,300
3750	82.241E	600 Harrison	228,000	228,000	10,000	10,000
3750	82.77V	642 Harrison (C)	54,400	45,900		
3764	82.591E	Second St. Sq. (C)*	333,000	263,000	25,000	25,000
3775	81.147V	338-340 Brannan (C)	36,000	36,000		
3776	EE81.59	Welsh Commons (M)	55,600	55,600	12,000	12,000
3788	81.296Z	690 2nd/Townsend (C)	16,600	16,600	16,000	16,000
3789	81.552EV	625 2nd/Townsend (C)	157,000	157,000		
3794	81.569EV	123 Townsend	104,000	49,500		
3794		155 Towsend	19,000	19,000		
3803	81.244D	China Basin Expansion	196,000	196,000		
9900	81.63E	Ferry Building Rehab.	309,500	97,500	163,500	124,000
TOTAL	APPROVED		5,658,275	4,760,625	376,950	294,450
		Major Downtown Office Projects Under Construction				
58	82.234E	Roundhouse (C)	45,000	45,000	3,000	3,000
136	81.243E	955 Front/55 Green	50,000	50,000		
143	81.353ED	1000 Montgomery (C)	39,000	39,000		
146	83.99EC	644 Broadway	42,800	42,800		
161	DR80.191	Mirawa Center	36,000	36,000	30,650	30,650
166	DR80.15	750 Battery	105,400	105,400	12,800	12,800
166	CU81.7	222 Pacific at Front (C)	142,000	142,000		

(continued on next page)

TABLE B-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984 (continued)

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Major Downtown Office Projects Under Construction				
167	SFRA	Golden Gateway III	103,000	103,000		
176	81.673EACV	Columbus/Pacific (Savoy)	49,000	49,000	22,000	22,000
208	81.104EDC	Washington/Montg. (M)	235,000	233,300	4,000	-1,200
227	EE80.296	Bank of Canton	230,500	177,500		-800
239	DR80.1	456 Montgomery	160,550	160,550	24,250	24,250
240	81.705ED	580 California/Kearny	329,500	260,000	6,500	6,500
261	81.249ECQ	345 California (M)	640,000	466,500	15,500	15,500
262	81.206D	130 Battery	41,000	41,000		
270	81.175ED	466 Bush	86,700	86,700	7,800	2,200
271	81.517	453 Grant	27,500	27,500	6,200	6,200
288	81.461EC	333 Bush (Campeau) (M)	498,400	458,100	20,900	20,900
288	DR80.24	101 Montgomery	264,000	234,000	4,900	-14,100
289	81.308D	One Sansome	603,000	603,000	7,000	7,000
311	82.120D	S.F. Federal	246,800	218,850	1,600	-9,440
351	DR79.24	Mardikian/1170 Market	40,000	40,000		
641	82.200CV	1735 Franklin (C)	8,600	8,600		
672	SFRA	Wealth Investments	104,500	104,500		
743	SFRA	Van Ness/Turk (Vanguard)	85,000	85,000		
767	STATE	State Office Building	293,300	293,300		
816	82.212ED	300-350 Gough (M/C)	16,000	16,000		
834	82.603E	25 Van Ness (C)	101,800	42,800	36,400	36,400
3512	82.14	Van Ness Plaza	170,000	170,000	6,000	6,000
3715	82.16EC	121 Steuart	33,200	33,200		
3715		141 Steuart	80,000	80,000		
3717	EE79.236	101 Mission	219,350	219,350		
3717	EE80.349	Spear/Main (160 Spear)	279,000	279,000	7,600	7,600
3717	82.82D	135 Main	260,000	260,000	4,000	4,000
3722	81.417ED	144 Second at Minna	30,000	30,000		
3741	82.203C	201 Spear	229,000	229,000	5,200	5,200
3787	81.306	252 Townsend at Lusk	61,000	61,000		
TOTAL UNDER CONSTRUCTION			5,985,900	5,530,950	226,300	184,660
GRAND TOTAL (ALL PROJECTS)			21,388,430	19,012,870	1,246,515	921,700

* (C) - Conversion (generally industrial and/or warehouse to office)
(M) - Mixed Use (office/residential/commercial)

SOURCE: Department of City Planning

TABLE B-3

MAJOR OFFICE BUILDING
CONSTRUCTION IN SAN FRANCISCO THROUGH 1983
(In gross square feet)

Year	Total Gross Square Feet Completed	5-Year Total	5-Year Annual Average	Cumulative Total of Office Buildings[2]	Cumulative Total of All Downtown Office Buildings[3]
Pre-1960				28,145,000	24,175,000
1960	1,183,000				
1961	270,000				
1962	-				
1963	-				
1964	1,413,000				
1960-1964		2,866,000 (2,580,000)[3]	573,200 (516,000)[3]	30,725,000	26,754,000
1965	1,463,000				
1966	973,000				
1967	1,453,000				
1968	1,234,000				
1969	3,256,000				
1965-1969		8,379,000 (7,541,000)[3]	1,675,800 (1,508,000)[3]	38,266,000	34,295,000
1970	1,853,000				
1971	-				
1972	1,961,000				
1973	2,736,000				
1974	2,065,000				
1970-1974		8,615,000 (7,753,000)[3]	1,723,000 (1,550,000)[1]	46,019,000	42,048,000

(continued)

TABLE B-3 (continued)

Year	Total Gross Square Feet Completed	5-Year Total	5-Year Annual Average	Cumulative Total of All Office Buildings[2]	Cumulative Total of All Downtown Office Buildings[3]
1975	536,000				
1976	2,429,000				
1977	2,660,000				
1978	-				
1979	2,532,000				
1975-1979		8,157,000 (7,341,000)[1]	1,631,400 (1,468,000)[1]	53,360,000	49,389,000
1980	1,284,000				
1981	3,029,000				
1982	3,771,000				
1983	4,108,700				
1980-1983		12,192,000[4] 10,972,800	3,048,000[4] 2,743,200	65,552,000	60,144,000

[1]Total net square feet (90% of gross). Net new space is added at an increase factor of 90%, since it is assumed that space equal to 10% of a new building is demolished to make land available for the new replacement building

[2]San Francisco Downtown Zoning Study, Working Paper No. 1, January 1966, Appendix Table 1, Part 1. For pre-1965, data include the area bounded by Vallejo, Franklin, Central Skyway, Bryant and the Embarcadero. Pre-1965 data also includes one-third of retail/office mixed use. For post-1964, data include the entire city.

[3]Gross floor space for downtown offices is included for the following functional areas: Financial, Retail, Hotel, Jackson Square, Golden Gateway, Civic Center, South of Market, and Outer Market Street as defined in the cited January 1966 report. For post-1964, the entire area east of Franklin Street is included.

[4]Four-year total and average.

Source: Department of City Planning, March 15, 1983

APPENDIX C: TRANSPORTATION

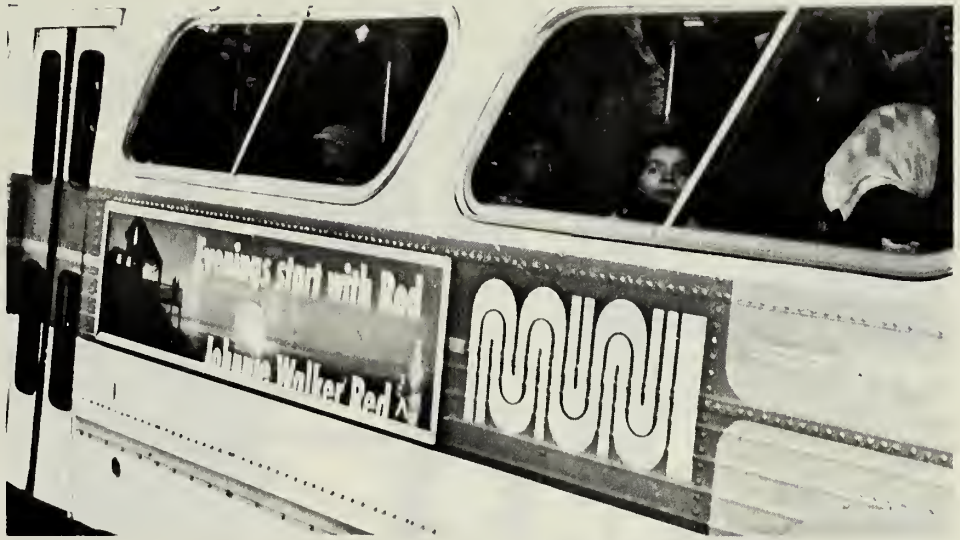
TABLE C-1: PASSENGER LEVELS OF SERVICE ON BUS TRANSIT

Level of Service	Description	Passengers per Seat
A	Level of Service A describes a condition of excellent passenger comfort. Passenger loadings are low with less than half the seats filled. There is little or no restriction on passenger maneuverability. Passenger loading times do not affect scheduled operation.	0.00-0.50
B	Level of Service B is in the range of passenger comfort with moderate passenger loadings. Passengers still have reasonable freedom of movement on the transit vehicle. Passenger loading times do not affect scheduled operations.	0.51-0.75
C	Level of Service C is still in the zone of passenger comfort, but loadings approach seated capacity and passenger maneuverability on the transit vehicle is beginning to be restricted. Relatively satisfactory operating schedules are still obtained as passenger loading times are not excessive.	0.76-1.00
D	Level of Service D approaches uncomfortable passenger conditions with tolerable numbers of standees. Passengers have restricted freedom to move about on the transit vehicle. Conditions can be tolerated for short periods of time. Passenger loadings begin to affect schedule adherence as the restricted freedom of movement for passengers requires longer loading times.	1.01-1.25
E	Level of Service E passenger loadings approach manufacturers' recommended maximums and passenger comfort is at low levels. Freedom to move about is substantially diminished. Passenger loading times increase as mobility of passengers on the transit vehicle decreases. Scheduled operation is difficult to maintain at this level. Bunching of buses tends to occur which can rapidly cause operations to deteriorate.	1.26-1.50
F	Level of Service F describes crush loadings. Passenger comfort and maneuverability is extremely poor. Crush loadings lead to deterioration of scheduled operations through substantially increased loading times.	1.51-1.60

SOURCE: Environmental Science Associates, Inc. from information in the Interim Materials on Highway Capacity, Transportation Research Circular 212, pp. 73-113, Transportation Research Board, 1980.

K INGLESIDE - VAN NESS STATION
Wednesday, September 9, 1981 - 8:00 A.M. - Inbound

N JUDAH - VAN NESS STATION
Wednesday, September 16, 1981 - 5:00 P.M. Outbound



38 GEARY - VAN NESS AVE. AND O'FARRELL ST.
Wednesday, October 21, 1981 - 9:00 A.M. - Inbound

38 GEARY - VAN NESS AVE. AND GEARY BLVD.
Wednesday, October 21, 1981 - 4:20 P.M. - Outbound

SOURCE: ESA

FIGURE C-1:
PHOTOS OF PEAK MUNI LOADING CONDITIONS

M OCEAN VIEW - CIVIC CENTER STATION
Wednesday, September 9, 1981 - 8:20 A.M. - Inbound

L TARAVAL - VAN NESS STATION
Wednesday, September 16, 1981 - 4:50 P.M. - Outbound

14 MISSION - MISSION STREET AND SOUTH VAN NESS AVE.
Tuesday, September 29, 1981 - 5:45 P.M. - Outbound

N JUDAH - DUBOCE AND CHURCH
Wednesday, June 8, 1983 - 8:00 A.M. Inbound

SOURCE: ESA

FIGURE C-1 (CONTINUED):
PHOTOS OF PEAK MUNI LOADING CONDITIONS

30X MARINA EXPRESS - BAYSHORE AVE. AND ARIETA AVE.
Wednesday, October 7, 1981 - 8:00 A.M. - Inbound

J CHURCH - CHURCH ST. AND DUBOCE AVE.
Tuesday, September 29, 1981 - 9:00 A.M. - Inbound

SOURCE: ESA

FIGURE C-1 (CONTINUED):
PHOTOS OF PEAK MUNI LOADING CONDITIONS

PEDESTRIAN ANALYSIS

The pedestrian analysis has been conducted following methods developed by Pushkarev and Zupan in Urban Space for Pedestrians (MIT Press, 1975). Table C-2 shows the relationship between pedestrian flow rates and the flow regimes (categories) used to describe levels of operation. Figure C-2 shows photographs of pedestrian conditions that correspond to the flow regimes.

TABLE C-2: PEDESTRIAN FLOW REGIMEN

FLOW REGIME/a/	CHOICE	CONFLICTS	FLOW RATE (p/f/m)/b/
Open	Free Selection	None	less than 0.5
Unimpeded	Some Selection	Minor	0.5 to 2.0
Impeded	Some Selection	High Indirect Interaction	2.1 to 6.0
Constrained	Some Restriction	Multiple	6.1 to 10.0
Crowded	Restricted	High Probability	10.1 to 14.0
	Design Limit - Upper Limit of Desirable Flow		
Congested	All Reduced	Frequent	14.1 to 18.0
Jammed	Shuffle Only	Unavoidable	Not applicable/c/

/a/ Photographs of these conditions are shown in Figure C-2.
/b/ P/F/M = Pedestrians per foot of effective sidewalk width per minute.
/c/ For Jammed Flow, the (attempted) flow rate degrades to zero at complete breakdown.

SOURCE: Urban Space for Pedestrians, MIT Press, 1975, Cambridge, MA.

The borderline between IMPEDED and UNIMPEDED FLOW, with about 130 sq ft (12 m^2) per person, or a flow rate of about 2 people per min per ft (6.5 per m) of walkway width. Individuals as well as couples visible in this view have a choice of speed and direction of movement. This rate of flow is recommended for design of outdoor walkways in office districts and other less dense parts of downtown areas.

The uneven nature of UNIMPEDED FLOW. While the people walking in the plaza—which is 17 ft (5.2 m) wide, compared to 23 ft (7 m) in the preceding picture have almost 130 sq ft (12 m^2) per person on the average, the space allocation for the eight individuals in the foreground is closer to 70 sq ft (6.4 m^2). Thus, indirect interaction with others is still quite frequent in the upper range of UNIMPEDED FLOW.

The midpoint of the IMPEDED FLOW range, with about 75 sq ft (6.9 m^2) per person, or a flow rate of about 4 people per min per ft (13 per m) of walkway width. Physical conflicts are absent, but pedestrian navigation does require constant indirect interaction with others. This rate of flow is recommended as an upper limit for the design of outdoor walkways in shopping districts and other dense parts of downtown areas.

Lower range of UNIMPEDED movement, approaching OPEN FLOW. About 350 sq ft (32.2 m^2) per person, or a flow rate of less than 1 person per min per ft (3.3 per m) of walkway width. Complete freedom to select the speed and direction of movement; individuals behave quite independently of each other. For a design standard based solely on pedestrian density, this amount of space can be considered excessive.

FIGURE C-2:
PHOTOS OF PEDESTRIAN FLOW LEVELS

SOURCE: Pushkarev and Zupan

JAMMED FLOW. Space per pedestrian in this view is about 3.8 sq ft (0.35 m^2). This is representative of the lower half of the speed-flow curve, where only shuffling movement is possible and even the extremely uncomfortable maximum flow rate of 25 people per min per ft (82 per m) of walkway width cannot be attained due to lack of space. Photograph by Louis B. Schlivek.

The threshold of CONGESTED FLOW. The first eleven people in the view have about 16 sq ft (1.5 m^2) per person, corresponding to a flow rate of about 15 people per min per ft (49 per m) of walkway width. The beginnings of congestion are evident in bodily conflicts affecting at least three of the walkers, and in blocked opportunities for walking at a normal pace.

The onset of CROWDED FLOW, with an average of about 24 sq ft (2.2 m^2) per person, or a flow rate of about 10 people per min per ft (33 per m) of walkway width. Choice of speed is partially restricted, the probability of conflicts is fairly high, passing is difficult. Voluntary groups of two, of which two can be seen in the picture, are maintained, but cause interference. Note also some overflow into the vehicular roadway in the background.

The midpoint of the CONSTRAINED FLOW range, with about 30 sq ft (2.8 m^2) per person, or a flow rate of about 8 people per min per ft (26 per m) of walkway width. The choice of speed is occasionally restricted, crossing and passing movements are possible, but with interference and with the likelihood of conflicts. The man in the dark suit seems to be able to cross in front of the two women in the foreground quite freely, but in the background near the curb people are having difficulty with passing maneuvers.

FIGURE C-2 (CONTINUED):
PHOTOS OF PEDESTRIAN FLOW LEVELS

SOURCE: Pushkarev and Zupan

INTERSECTION ANALYSIS

The capacity analysis of each intersection at which a turning movement count was made utilized the "critical lane" method. This method of capacity calculation is a summation of maximum conflicting approach lane volumes that gives the capacity of an intersection in vehicles per hour per lane. (This method is explained in detail in an article entitled "Intersection Capacity Measurement Through Critical Movement Summations: A Planning Tool," by Henry B. McInerney and Stephen G. Peterson, January 1971, Traffic Engineering. This method is also explained in "Interim Materials on Highway Capacity", Transportation Research Circular No. 212, Transportation Research Board, January 1980). The maximum service volume for Level of Service E was assumed as intersection capacity. A service volume is the maximum number of vehicles that can pass an intersection during a specified time period in which operating conditions are maintained corresponding to the selected and specified Level of Service (see Table C-3). For each intersection analyzed, the existing peak-hour volume was computed and a volume-to-capacity (v/c) ratio was calculated by dividing the existing volume by the capacity at Level of Service E.

TABLE C-3: VEHICULAR LEVELS OF SERVICE AT SIGNALIZED INTERSECTIONS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.	less than 0.60
B	Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.	0.61-0.70
C	Level of Service C describes a condition where the approach to an intersection is often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.	0.71-0.80
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operation can generally be described as fair.	0.81-0.90
E	Capacity occurs at Level of Service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting up-stream of the intersection and vehicles may be delayed up to several signal cycles. The traffic operation can generally be described as poor.	0.91-1.00
F	Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.	1.01+

/a/ Capacity is defined as Level of Service E.

SOURCE: San Francisco Department of Public Works, Traffic Division, Bureau of Engineering from Highway Capacity Manual, Highway Research Board, 1965

TABLE C-4: TRAFFIC LEVELS OF SERVICE FOR FREEWAYS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.	0.00-0.60
B	Level of Service B is in the higher speed range of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted.	0.61-0.70
C	Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes, or pass. A relatively satisfactory operating speed is still obtained.	0.71-0.80
D	Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.	0.81-0.90
E	Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds (typically about 30 to 35 mph) than in Level D, with volumes at or near the capacity of the highway. Flow is unstable, and there may be stoppages of momentary duration.	0.91-1.00
F	Level of Service F describes forced flow operation at low speeds (less than 30 mph), in which the freeway acts as storage for queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion. In the extreme, both speed and volume can drop to zero.	1.00+

/a/ Capacity is defined as Level of Service E.

SOURCE: Environmental Science Associates, Inc. from information in the Highway Capacity Manual, Special Report 87, Highway Research Board, 1965.

SAN FRANCISCO AIR POLLUTANT SUMMARY 1979-1983[1]

Pollutant	Federal Standard[2]	State Standard[3]	1979	1980	1981	1982	1983
Carbon Monoxide (CO)							
1-hour average (ppm)	35	20					
Highest hourly average			20	10	8	--	--
No. of exceedances			0	0	0	0	0
8-hour average (ppm)	9	9					
Highest 8-hour average			13.8	7.5	5.3	9	5.1
No. of exceedances			1	0	0	1	0
Ozone (O_3)							
1-hour average (ppm)	.12[4]	.10					
Highest hourly average			0.08	0.09	0.07	.08	.13
No. of exceedances			0	0	0	0	1
Nitrogen Dioxide (NO_2)							
1-hour average (ppm)	None	.25					
Highest hourly average			0.16	0.17	0.11	.13	.13
No. of exceedances			4	0	0	0	0
Sulphur Dioxide (SO_2)							
24-hour average (ppm)	.14	.05					
Highest 24-hour average			0.034	0.018	0.016	.012	.018
No. of exceedances			0	0	0	0	0
Total Suspended Particulate (TSP)							
24-hour average (ug/m^3)	260	100					
Highest 24-hour average			117	173	103	106	117
No. of exceedances			1	6	1	3	4

SAN FRANCISCO AIR POLLUTANT SUMMARY 1979-1983[1]

Pollutant	Federal Standard[2]	State Standard[3]	1979	1980	1981	1982	1983
Annual Geometric Mean (ug/m^3)[5]	75	60					
Annual Geometric Mean			42.0	52.1	56.0	57.0	55.0
Annual Exceedances			No	No	No	No	No
Lead							
3-month Average (mg/m^3)	1.5	None					
Highest 3-month average			0.95	0.53	0.35	---	---
No. of exceedances			0	0	0	---	---
1-month Average (mg/m^3)	None	1.5	---	---	---	---	---
No. of exceedances	---	---	---	---	---	---	---

[1]1979 data collected at 939 Ellis Street. 1980-83 data collected at 900 23rd Street.

[2]Federal standard is not to be exceeded more than once per year. Annual average standards are not be exceeded.

[3]State standards are not to be equalled or exceeded. The State 1-hour average CO standard was reduced from 40 ppm to 20 ppm in 1982.

[4]The federal standard is given in terms of Expected Annual Excesses which is based on a 3-year running average.

[5]The annual Geometric Mean is a single number which applies to an entire year of data. "No" indicates TSP concentrations did not exceed 60 (ug/m^3).

Note: ppm = parts per million
ug/m^3 = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter

Source: BAAMQD, Air Pollution in the Bay Area by Station and Contaminant, March issues, 1980-1984; and California Air Resources Board, California Air Quality Data, Annual Summaries, 1979-1982.

APPENDIX E: RESIDENCE PATTERNS AND HOUSING

This appendix describes the methodologies for estimating residence patterns for the project and for cumulative development in downtown San Francisco. There is one method for estimating residence patterns for the project; there are two methods for estimating residence patterns associated with cumulative development. The background on these latter two approaches is presented in Section V.A., Introduction to Cumulative Impact Analysis.

Estimating Residence Patterns for the Project

For the purposes of cumulative impact analysis, the residence patterns for the project are estimated for the year 2000. The assumption is that the project would have characteristics similar to the average characteristics for all similar buildings in the C-3 District in 2000.

The first step is to estimate employment in the project. The year 2000 employment densities developed in the Downtown Plan analysis for management/technical office space (267 gsf per employee) and retail space (350 gsf per employee) are applied to the net additional space in the project in each of these use categories./1/ (In some projects the net additional retail space may be a negative number.)

In the second step, the number of these workers who would live in San Francisco and other areas of the region are estimated using the year 2000 distribution of C-3 District management/technical office workers and retail workers by place of residence. The residential distribution for office workers in the project would be: San Francisco - 44 percent, east bay - 35 percent, peninsula - 11 percent, and north bay - 10 percent. For retail workers, the distribution would be: San Francisco - 75 percent, east bay - 12 percent, peninsula - 10 percent, north bay - 3 percent./2/ The total estimate of workers in the project who would live in each area of the region is the sum of the office and retail estimates in each area.

Estimating Residence Patterns for Cumulative Development

Two residence patterns forecasts are used in the cumulative impact analysis. The first is from the Downtown Plan analysis of C-3 District development and employment growth to the year 2000. The C-3 District forecasts presented in this project EIR Supplement are the result of the methodology and procedures used in the Downtown Plan analysis to forecast changes over time in the residential distribution of C-3 District workers. No new calculations were undertaken for the purposes of this Supplement. The second residence patterns forecast involved a set of calculations to establish both a 1984 base year estimate and future estimates for projects on the list of cumulative office development. These are described below.

Downtown Plan Approach

The residence patterns for all C-3 District employees in 2000 were forecast for the Downtown Plan Draft EIR. These forecasts are summarized in the Supplemental EIR section on Residence Patterns and Housing (see Table 9). The methodologies for forecasting C-3 District employment and residence patterns are described in Appendices H and I of the Downtown Plan Draft EIR./3/ Table I.10 on p. I.38 of the Downtown Plan Draft EIR shows the residence patterns percentages applied to employment in each land use (or business activity). The resultant distribution for all workers by place of residence is as follows: San Francisco - 50 percent, east bay - 29 percent, peninsula - 13 percent, and north bay - 8 percent.

List-Based Approach

The methodology for estimating residence patterns for workers associated with the list of cumulative office development in the downtown area is based on applying factors describing current conditions to the increment of office and retail space included in projects on the list. The factors and data describing current conditions for employment densities and the distribution of workers by place of residence are presented in the Department of City Planning document Transportation Guidelines for Environmental Impact Review: Transportation Impacts (hereinafter Transportation Guidelines), published in

September, 1983. The data in the Transportation Guidelines are based on analyses of the C-3 District Employer and Employee Surveys conducted for the Downtown Plan Draft EIR, and a similar survey conducted in the South of Market/Folsom area.

In the first step, an employment density factor is applied to the net addition of office and retail space in projects on the list. For office space the density factor is 276 gsf per employee; for retail space the density factor is 350 gsf per employee./4/

In the second step, projects in the South of Market/Folsom area (bounded by Folsom, Ninth, Berry, and the Embarcardero) are treated differently from projects elsewhere in the downtown area./5/ The residence patterns for all workers in the South of Market/Folsom projects are estimated according to the following percentage distribution: San Francisco - 44 percent, east bay - 27 percent, peninsula - 16 percent, and north bay - 13 percent./6/ The residence patterns for office workers in other projects on the list (in the C-3 District and elsewhere in the downtown area) are estimated according to the following percentage distribution: San Francisco - 49 percent, east bay - 32 percent, peninsula - 11 percent, and North Bay - 8 percent./7/ For retail workers in these non-South of Market/Folsom projects, the residence pattern distribution is as follows: San Francisco - 77 percent, east bay - 11 percent, peninsula - 10 percent, and north bay - 2 percent./8/ The sum of all workers in each place of residence is the estimate of the increase in downtown workers living in each area due to development of projects on the cumulative list.

This approach has a third step in order to estimate cumulative totals for the downtown workforce, comparable to the C-3 District 2000 forecasts. For residence patterns, the base year totals are the 1984 estimates as prepared for C-3 District employment for the Downtown Plan analysis, plus estimates for the other downtown areas. These latter estimates are based on order-of-magnitude employment estimates for the South of Market/Folsom area and all other downtown areas outside the C-3 District. For the 1984 base year residence patterns totals, the percentage distributions noted above (from the Transportation Guidelines) are applied to employment estimates for

the South of Market/Folsom area and other downtown areas, as appropriate. The sum of the 1984 base year totals of workers living in each area of the region and the estimates for each area developed from the list of projects represents the downtown workers residing in each area in the future, accounting only for build-out of the projects on the list. Other changes both in land use and in the intensity of activity in space in the downtown area could occur over this time period. If these changes were included in the analysis, the employment estimates and the estimates of workers residing in each area of the region would be larger than shown in the text.

NOTES - Appendix E

/1/ Downtown Plan Draft EIR, p.IV.C.45 and note 30 on p.IV.C.61; also see Table IV.C.2 on p. IV.C.6.

/2/ Ibid., p. I.38.

/3/ For a description of the employment forecast methodology, see the Downtown Plan Draft EIR, Appendix H, pp. H.6-H.16. For a description of the residence patterns forecast methodology, see the Downtown Plan Draft EIR, Appendix I, pp.I.8-I.30.

/4/ San Francisco Department of City Planning, Transportation Guidelines for Environmental Impact Review: Transportation Impacts, September, 1983, pp.14 and 17.

/5/ See Transportation Guidelines, pp. 28 and 30 for maps of the Cumulative Development Study Area and the South of Market/Folsom area.

/6/ Ibid., p. 21.

/7/ Ibid., pp. 11-12.

/8/ Ibid., p. 17.

APPENDIX F: CITY PLANNING COMMISSION RESOLUTION OF PROJECT APPROVAL

January 28, 1982
81.104 EDC

SAN FRANCISCO

CITY PLANNING COMMISSION

RESOLUTION NO. 9294

WHEREAS, The City Planning Commission on January 28, 1982 heard Application No. 81.104 EDC for a Conditional Use for the proposed Montgomery/Washington Street Building, to permit addition BONUS FLOOR AREA of up to 83,680 square feet, to be utilized for residential use only, as part of a mixed use residential/office project in a C-3-O (Downtown Office) and 300-H Height and Bulk District; and

WHEREAS, The City Planning Commission on January 28, 1982 heard Application No. 81.104 EDC for Discretionary Review of Building Permit Application No. 8108844 for the proposed Montgomery/Washington Building, to determine the appropriateness of the proposed use, overall project density and character, on property described as follows:

Montgomery/Washington, the southwest corner of Montgomery and Washington Streets, Lots 2, 3, 4, 25 of Assessor's Block 208; and

WHEREAS, The City Planning Commission on June 29, 1967 approved Resolution No. 6112 establishing a policy of discretionary review for all applications for new and enlarged buildings in the Portsmouth Corridor area, bounded by Kearny, Washington, Davis and Clay Streets, with particular attention to the effects of any such buildings upon views to be created or blocked, relationships to adjoining properties, potential development of the area as a unified whole, relationships to Washington and Clay Streets, and effects upon the adjacent Jackson Square area; and

WHEREAS, The initial intention of zoning and Master Plan policies for the Portsmouth Corridor was to provide for a transition in density between the downtown core and the Jackson Square area; and

WHEREAS, The City Planning Commission on January 17, 1980 approved Resolution No. 8474 establishing a policy whereby any building permit application in the Downtown Interim Special Review Area would be reviewed by the Commission under its discretionary powers, and that the topics of review would include the protection and enhancement of the pedestrian environment, preservation of architectually and historically significant buildings, preservation of housing, avoidance of industrial displacement, adequate and appropriate means of transportation, energy conservation, relationship to environs, and effect on views from public areas and on the skyline; and

WHEREAS, The City Planning Commission on January 31, 1980 approved Resolution No. 8480 which proposed to eliminate bonuses for office use, but allow bonuses for residential and hotel uses as a Conditional Use. This proposal was adopted by the Board of Supervisors through Ordinance No. 240-80, effective July 1, 1980; and

WHEREAS, The proposed project would be the development of a 24-story, mixed use residential/office project, of which six floors would be residential, containing approximately 40 condominium units, for which BONUS FLOOR AREA is being requested; and

WHEREAS, The commercial portion of the proposed project would contain 15 office floors, one retail level and one parking level with spaces for approximately 62 vehicles; and

WHEREAS, The proposed project is located at the fringe of the downtown commercial core, within the Portsmouth Corridor and adjacent to the Jackson Square Historic District; and

WHEREAS, The City Planning Commission acknowledges that before acting on the project, it has reviewed, considered and approved the information contained in the Final Environmental Impact Report, dated January 28, 1982, concerning 81.104 E, Montgomery/Washington Building, San Francisco, having found said report to be adequate, accurate and objective, and has CERTIFIED THE COMPLETION of said Report in compliance with the California Environmental Quality Act and the State EIR Guidelines; and

WHEREAS, The proposed project, as indicated by the Final Environmental Impact report will have a significant effect on the environment in that the proposal will create a specific demand for housing from the project itself , and will contribute to the cumulative increase in transit ridership and pedestrian and vehicular traffic; air quality; and housing impacts produced by development approved and under construction in the downtown area; and

WHEREAS, Conditions can be established in authorizing the proposed project that substantially mitigate such environmental impacts; and

WHEREAS, These conditions call for expansion of the housing supply and implementation of mitigation measures described in the EIR for transportation, which also mitigate air quality impacts; and

WHEREAS, This permit application must be reviewed by the City Planning Commission under their discretionary review powers pursuant to Commission policy under Resolution No. 6112 and Resolution No. 8474, which review is similar procedurally to the review given a conditional use application; and

WHEREAS, The City Planning Commission has determined, as called for under Section 303 of the Planning Code, that the proposed project:

1. Will be desirable for and compatible with the neighborhood;

2. Will not be detrimental to the health, safety, convenience or general welfare of the neighborhood and its inhabitants;

3. Will comply with applicable provisions of the Planning Code and will not adversely affect the Master Plan.

THEREFORE BE IT RESOLVED, That the City Planning Commission finds that the provisions of Sections 303 of the City Planning Code are met, in accordance with the standards specified in the City Planning Code, and said Conditional Use is hereby authorized, and Building Permit Application No. 8108844 for a mixed use residential/office building at Montgomery/Washington Streets is approved.

AND BE IT FURTHER RESOLVED, That the City Planning Commission finds that the following measures will mitigate the significant effects on air quality, traffic and pedestrian use of adjoining streets, on transit use and transit demand in the downtown area, and on housing demand:

Transportation and Pedestrian Movement

1. The project sponsor will help expand transportation services by agreeing to contribute funds to augment transportation service, in an amount proportionate to the demand created by the project, through an equitable funding mechanism to be developed by the City.

2. The project sponsor will retain a transportation broker responsible for coordinating programs designed to encourage transit use, ridesharing, carpool/vanpool systems.

3. The project sponsors will conduct a transportation survey in accordance with Departmental guidelines.

4. The project sponsors will provide 2 loading spaces for service vehicles.

5. The project sponsor will cooperate in mitigating and/or meeting both long and short term parking demand generated by the project off-site.

Housing

1. The project sponsor agrees to cause the construction and/or rehabilitation of 210 housing units in San Francisco, 40 of these units will be on site.

BE IT FURTHER RESOLVED, That the City Planning Commission finds that measures or alternatives which are described in the Final EIR and which would reduce or avoid impacts identified to be significant and which are not included as part of the approved project are either within the jurisdiction of another city agency or are infeasible due to economic and other considerations described in the FEIR; and

BE IT FURTHER RESOLVED, That the City Planning Commission finds that the following positive aspects of the project would override any significant impacts not mitigated:

a. improvement of downtown land with a new office structure;

b. creation of approximately 300 person-years of construction employment;

c. accommodation of approximately 950 permanent jobs;

d. further strengthening of the C-3-O district as a compact center for financial, technical, professional, and administrative services;

e. making more efficient use of scarce land resources through mixed use development;

f. development of a design that provides a successful transition, in terms of form, with the Jackson Square Historic District and the Financial District;

g. partial mitigation of housing and transportation impacts through mixed use residential/office development;

h. enlivenment of the downtown as both a living and working environment;

i. energy savings achieved through cogeneration;

and

BE IT FURTHER RESOLVED, That the City Planning Commission requests the Director to use his best efforts to assure that the portion of the proceeds from the sale of Lot 25 of Assessor's Block 208, which represents the difference between the actual acquisition costs for the property and the sale price or comparable amount from other sources be used to purchase and/or improve land for open space in Chinatown;

and

BE IT FURTHER RESOLVED, That Building Permit Application No. 8108844 is hereby APPROVED for a building not to exceed a commercial F.A.R. of 14 to 1, and additional bonus floor area of up to 83,680 gross square feet for residential use only, and subject to the following conditions: +4.8

General Mitigation Measures

1. "Mitigation Measures To Be Included In The Project", as outlined in the final EIR, 81.104 E, shall be conditions of this Resolution. If said measures are less restrictive than the following conditions, the more restrictive and protective control shall govern.

Design and Cultural Resources

1. The final plans shall meet the standards of the Planning Code and be in general conformity with the plans accepted by the City Planning Commission on January 28, 1982, said plans on file with the Department of City Planning and marked as EXHIBIT "A" Montgomery Washington Building.

2. Decisions on final materials, glazing, color, texture and detailing are subject to staff review and approval. Reflective coated mirrored glass is not permitted.

3. The ground floor plan and further design refinement shall be developed with department staff and be subject to departmental approval. Particular

attention shall be given o the question of security for the walkway between the project and the Holiday Inn. Staff shall seek the participation of Holiday Inn in the review of security measures.

Rear Yard Variance

1. The project sponsor shall meet rear yard requirements or apply for and justify the granting of a rear yard variance as provided for in the Planning Code.

Transportation

1. In recognition of the need for expanded transportation services to meet the peak demand generated by cumulative commercial development in the downtown area, the project sponsor shall contribute funds for maintaining and augmenting transportation service, in an amount proportionate to the demand created by the project, through an equitable funding mechanism developed by the City.

2. The project sponsor shall retain a transportation broker responsible for coordinating, implementing and monitoring the programs among tenants and employees to encourage flex-time transit use and ridesharing, including but not limited to the following: on-site sale of BART tickets and Muni passes and employer subsidized transit passes, establishment of an employee carpool/vanpool system in cooperation with RIDES for Bay Area Commuters or other such enterprises.

3. Within a year after completion of the project, the project sponsor shall conduct a survey, in accordance with methodology approved by the Department of City Planning, to assess actual trip generation, trip distribution, and modal split pattern of project occupants, and actual pick-up and drop-off areas for carpoolers and vanpoolers. The results of this survey sh l be made available to the Department of City Planning. Alternatively, at the request of the Department of City Planning, the project sponsor will provide an in lieu contribution for an overall survey of the downtown area to be conducted by the City.

4. Project sponsors agree to provide a minimum of two on-site loading service vehicle spaces, meeting the guidelines adopted by the City Planning Commission Resolution #9286 on January 21, 1982.

5. To meet the short-term parking deficit identified in the EIR, the project sponsor shall (a) provide for the conversion of existing long-term parking spaces in the core to short-term use, and /or (b) provide the short-term parking spaces in the short-term parking belt as defined in the Master Plan, either independently or in association with other project sponsors and/or the San Francisco Parking Authority, to meet the demand for those short-term trips which can not reasonably be accommodated by public transit.

6. The project sponsor shall: (i) participate with other project sponsors and/or the San Francisco Parking Authority in undertaking studies of the feasibility of constructing an intercept commuter parking facility in an approved location to meet the unmet demand for parking for work trips generated by the project which cannot reasonably be made by transit and (ii) participate with other project sponsors and/or the Municipal Railway in studies of the feasibility of the establishment of a shuttle system serving the project site and the parking facility.

7. Project sponsor shall report to staff within one year of the release of site and/or building permits by the department, of progress being made in meeting short and long term parking requirements, and shall continue to report on progress on a six month basis until a Temporary Certificate of Occupancy is issued by the City.

8. The project sponsors agree that, in consultation with the Municipal Railway, eyebolts or provisions for direct attachment of eyebolts for Muni trolley wires will be installed on the proposed building wherever necessary or agreed to waive the right to refuse the attachment of eyebolts to the proposed building if such attachment is done at City expense.

9. Project sponsor agrees to provide a minimum of 10 secure spaces for bicycles and/or mopeds within the project.

10. The placement of paving, landscaping or structures in the sidewalk areas (subject to City approval) shall be done in such a way as to minimize interference with pedestrian traffic.

Housing

1. In order to help meet the housing demand generated by this project, project sponsors and/or successive project owners shall cause the construction and/or rehabilitation of 210 housing units in San Francisco. Within two years of the date of this action, project sponsor and/or successive owners shall present plans and/or a program for meeting the housing mitigation. Construction and/or rehabilitation of required housing shall be completed within three years following issuance of a Temporary Certificate of Occupancy. Project sponsor will be credited with housing built on site, as he may elect, based on adopted guidelines.

   Rehabilitation within the context of this condition means the return to the housing market of units that have been vacant for reasons other than making them eligible for satisfying this condition for at least one year as of the date of this Resolution.

   Project sponsors shall report back to the City Planning Commission periodically at 6 month intervals on their efforts to construct or to rehabilitate units, beginning within 6 months of the release of site/building permits by the Department of City Planning.

2. In meeting its housing requirements, project sponsor shall comply with any City policies and guidelines, which may be adopted prior to the issuance of a Temporary Certificate of Occupancy, for providing low and moderate income housing.

Energy

1. One year after occupancy of the structure, actual energy consumption, converted to thousands of British Thermal Units, from Pacific Gas and Electric monthly billings, shall be reported to the Department of City Planning. If the consumption exceeds applicable state standards in effect at the time of issuance of the Building Permit, a PG&E or other certified energy audit shall be performed, and those recommended energy conservation measures which have a 3-year or less payback shall be implemented.

2. Project sponsor shall consider all appropriate energy conservation measures in building design and operations. Prior to release of the permits, the sponsor shall submit to the Department of City Planning a report containing its assessment of the cost effectiveness of the utilization in the project of the various measures outlined in the attached checklist and its reasons for rejecting those measures not employed. Measures to be considered:

   (1) passive solar energy design;

   (2) increase in natural interior illumination (daylighting) through atriums, skylights, etc;

   (3) shading devices on south facing windows;

   (4) heat absorptive glass for all windows, except ground level;

   (5) other lighting reduction strategies, including high efficiency outdoor lights, watt misers, task lighting, time switches on storerooms, occupancy sensors, etc.;

   (6) alternates to air conditioning, including natural ventilation;

   (7) economizer cycle (which increases use of outside air) in HVAC systems; automatic temperature reset in ducts and pipes;

   (8) computer monitoring systems for HVAC, lighting;

   (9) load shedding capacity;

   (10) utility metering for individual users/tenants;

   (11) alternate energy systems for hot water;

   (12) heat recovery systems.

Employment

1. The project sponsor agrees to notify the City's Employment and Training system at least six months prior to project completion of prospective building tenants and job opportunities within the building so that an Employment Plan can be developed which gives hiring preference to qualified San Francisco residents, particularly the unemployed and underemployed.

Performance

1. The authorization and rights vested by virtue of this action shall be deemed void and cancelled, if within one year of this approval construction has not commenced, foundation work having been substantially started.

   The one year period will be extended only where the failure to issue a permit by the Bureau of Building Inspection to construct the proposed building is delayed by a City agency or by appeal of the issuance of such a permit.

Preservation/Archeology

1. Should evidence of historic or prehistoric artifacts be uncovered at the site during construction, the project sponsor shall be responsible for, and require the following: (1) that the contractor notify the Environmental Review Officer and the President of the Landmarks Preservation Advisory Board; (2) that the contractor suspend construction in the area of the discovery for a maximum of four weeks to permit review of the find and, if appropriate, retrieval of artifacts; (3) that the project sponsor pay for an archeologist or historian acceptable to the Environmental Review Officer to help review the find and identify feasible measures, if any, to preserve or recover artifacts; and (4) if feasible mitigation measures are identified, that they will be implemented.

Recordation

1. This resolution shall be recorded against the title as conditions in the event the project proceeds as herein approved. Evidence of recordation shall be submitted to the Department of City Planning prior to the release of site and/or building permits.

I hereby certify that the foregoing Resolution was ADOPTED by the City Planning Commission at its regular meeting of January 28, 1982.

Lee Woods
Secretary

AYES: Commissioners Karasick, Kelleher, Klein, Nakashima, Rosenblatt, Salazar.

NOES: Commissioner Bierman

ABSENT: None

PASSED: January 28, 1982